POLICY RESEARCH WORKING PAPER 2453

Designing Financial Safety Nets to Fit Country Circumstances

Edward J. Kane

For optimal regulation, one size does not fit all. Differences in countries' informational and contracting environments—in the transparency of information, in protections for counterparties, and in political accountability—influence the design of their financial safety nets and their strategies for managing the breakdown of those nets.

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Summary findings

Kane explains how differences in the informational and contracting environments of countries affect the optimal design of their financial safety nets and their optimal strategies for managing financial crises.

He explains how to design and operate safety nets at minimum cost to taxpayers and well-managed banks in countries whose informational and contracting technologies differ. His basic premise is that optimal regulation is not a one-size-fits-all proposition.

A country's safety net should be transparent, deterrent to too much risk-taking, and accountable, but Kane shows large differences across countries in the transparency and deterrence banks afford their depositors, highlighting why the design of safety nets must allow for differences in the enforceability of private contracts.

The weaker a country's informational, ethical, and corporate governance environment, the more a wholly governmental system of explicit deposit guarantees is apt to undermine bank safety and stability. How a country's safety net evolves depends on the ability of the private and public sectors to value banks, discipline risk-taking, and resolve financial difficulties promptly. And political accountability is essential if the public part of these tasks is to evolve effectively and efficiently.

As a rule of thumb, safety-net managers should avoid either subsidizing or taxing bank risk-taking, says Kane. Even if analysts could formulate a beneficial tax or subsidy rule, it is unlikely that channeling the effect through a government-run deposit insurance system that fails to account publicly for the size of taxpayers' stake could improve upon more straightforward arrangements.

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DESIGNING FINANCIAL SAFETY NETS TO FIT COUNTRY CIRCUMSTANCES*

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Optimal financial regulation is not a one-size-fits-all proposition. This paper seeks to gather evidence on how differences in the informational and contracting environments of individual countries have influenced the design of their financial safety nets and their strategies for managing safety-net breakdowns.

Its larger purpose is to apply the concept of revealed preference to evidence on safety-net design to frame a menu of principled policy advice that takes reasonable account of differences in the informational transparency, counterparty protections, and political accountability found in individual countries.

I. The Safety Net As Metaphor

A net is a mesh that has been rigged to serve a set of particular purposes. In erecting a literal "safety net," a circus manager has in mind at least two purposes. The direct purpose is to protect falling acrobats by having the net catch them before they can harm themselves and traumatize the audience by splattering against the ground. However, the net's larger, indirect purpose is to enhance audience enjoyment in a positive way. The net does this by making it economically rational for circus acrobats to undertake difficult, but do-able stunts in which the danger of a spectacular fall seems very real.

The word do-able is emphasized to clarify that the net is meant to encourage prudent risk-taking. The net's entertainment function is frustrated unless the acrobats almost always complete their stunts successfully. Carrying out a simple trick is typically more engaging than failing to accomplish a complicated one. Trapeze and tightwire performers that fall repeatedly into the net earn boos and catcalls that sensible circus managers want to avoid.

A circus manager must also make sure that the costs of building and maintaining the net do not exceed the benefits it produces. Managers must balance a series of subtle tradeoffs between original costs, monitoring expense, safety, visibility, and audience response. There is no general reason to suppose that governments should direct net managers either to tax or to subsidize institutional risk-taking. In general, widespread and sturdy meshes are safer, but they are more costly and –by being more visible– lessen the sense of risk sharing that lies at the heart of audience enjoyment. Sturdy filament materials exist whose thinness can make the net less visible, but these materials may make the net more costly to build and maintain. Finally,

whenever the net a manager erects proves unable to stop an unfolding disaster, emergency medical treatment must be accessed optimally and the manager must expect a storm of condemnation to rain down on his head from all sides: from performers, from circus owners, and from the audience.

Whether or not the elements of the net are defined by explicit statutes, authorities in every country establish a de facto safety net for banks and support the net by incurring monitoring costs and penalizing to some degree fraudulent and corrupt behavior in financial and governmental transactions. This paper seeks to explain how to design and operate safety nets at minimum cost to taxpayers and well-managed banks in countries whose informational and contracting environments differ in stylized ways.

A country's financial safety net shares four metaphorical entailments with its circus counterpart. First, like acrobats, financial institutions may choose to engage in activities so risky that critical mistakes can quickly cripple them or even end their existence. In the metaphor, borrowers and depositors play the dual role of onlookers and manufacturers of trapezes and tightwire platforms, while taxpayer audience members also own shares in the circus. Financial safety nets serve not just to protect borrowers, depositors, and taxpayers from being harmed by financial-institution mistakes, but also to encourage individual institutions to accept the risks associated with funding economically productive activities. In countries where reliable public information about business performance is in short supply, banks tend to dominate the flow of institutional finance. In such circumstances, a country's financial safety net reduces to its arrangements for protecting bank customers and for monitoring, assisting, and controlling banks.

Second, just as circus managers do, regulators must guard against excessive risk-taking and must manage the several costs and benefits the safety net produces. Safety nets for banks may be instructively conceived as a nexus of contracts that help them cope with runs and other economic shocks (Diamond and Dybvig, 1983; Kane, 1995; Brock, 1999). Each net is a multidimensional policy scheme that is alleged to balance the costs and benefits generated by:

1. protecting bank customers from being blindsided by bank insolvencies;
2. limiting aggressive risk-taking by banks;
3. preventing and controlling damage from bank runs;
4. detecting and resolving insolvent banks; and
5. allocating across society whatever losses occur when an insolvent bank is closed.

Third, a country's financial safety net may be analyzed as a figurative mesh whose filaments tie regulatory officials and bank stakeholders into a web of mutually reinforcing contracts. Officials must be made accountable for any design flaws or breakdowns in stringing the web that compromise the net's overall effectiveness. For strategies of crisis prevention to be maximally successful, the web of contracts must hold top regulators accountable for measuring and managing the social costs and risk-taking incentives generated by their decisions about the net's various design features. Cross-country variation in the legal and private-information environment should influence these decisions. Ideally, the design of the regulatory portion of net should tie securely into the characteristics of the particular financial system and economy in which it is embedded. To fashion a weave of the right size and strength, decisions bearing on the cost and effectiveness of net components should be observable enough to be disciplined by appropriate market and budgetary tests.

Finally, authorities must understand that on occasion even the best-designed safety net will fracture or prove too small. This means authorities must develop and regularly review strategic plans for managing financial crises and train their staff in the use of crisis-management protocols. Paradoxically, unless the safety net is backed up by solid crisis planning, improvements in the safety net may result in less frequent but more devastating crises. On balance, the more effective a nation's safety net becomes, the less likely it is that regulatory personnel will have prior hands-on experience in coping with severe crisis pressures.

Examining how and where the circus metaphor breaks down is also instructive. The rub is that --unlike the splattering of an unlucky, incompetent, or well-connected acrobat-- breakdowns in financial safety nets are not immediately visible to the naked eye. This indiscernibility creates opportunities for incumbent regulators to conceal and sugarcoat information about difficulties that occur during their particular terms in office. Regulators can strongly influence the character of information that may and may not be entered on bank balance sheets and income statements. Precisely because top regulators do not want to see their professional reputation besmirched by being held responsible for a financial-institution disaster, their ability to influence reporting protocols can be a mixed blessing. Defects in transparency support an incentive to delay insolvency resolution, so as to allow individual banks whose insolvency is not yet widely recognized an opportunity to gamble for resurrection at taxpayer and competitor expense.

To the extent that regulators can block the flow of adverse information, their sensitivity to public criticism tempts managers and owners of insolvent institutions to reinforce this dangerous incentive conflict. They offer subtle and unsubtle benefits to top regulators who are willing to conceal an incipient crisis and to accept the social costs of postponing the strong public actions that may be needed to restore banking solvency. By helping to hide developing insolvencies, top regulators may reasonably hope to achieve a reputationally "clean" getaway. Most of the blame for allowing a crisis to develop can be sidestepped by patching whatever signs of crisis surface on their watch and shifting responsibility for recapitalizing the damaged banking system to succeeding generations of regulatory officials. This hope supports efforts to downplay the importance of crisis planning and to commit regulators to work through every incipient breakdown as if it were a unique event that they had to handle in an ad hoc manner.

II. Contracting Difficulties that Make a Safety Net Socially Beneficial

Modern finance theory emphasizes that, even in a corruption-resistant society, bank depositors must worry about controlling incentives for opportunistic behavior by managers, owners, and borrowers (Jensen and Meckling, 1976; Diamond, 1984). Besides the difficulties depositors face in coordinating collective action, these incentives have two intertwined roots:

1. difficulties a depositor faces in obtaining reliable information about unfavorable developments and observing adverse actions by bank managers, including recklessness, negligence, incompetence, fraud, and self-dealing (monitoring costs);
2. difficulties a depositor faces in adequately analyzing and responding to whatever information their monitoring activity turns up (policing costs).

The tools of regulatory loss control are rulemaking and enforcement. To understand the role played by a country's financial safety net, it is helpful to imagine a world in which depositors' monitoring and policing costs would be uniformly zero. In this world, each deposit contract would be self-enforcing. Establishing a team of centralized monitors and enforcers to thwart misconduct by bank insiders would offer no benefit either to banks or to their depositors. In such a world, changes in a bank's condition and risk exposure would be transparent to depositors and depositors would possess sufficient expertise and sanctions to deter bank insiders from trying to take advantage of them. Maximal transparency describes a framework of disclosure that would perfectly and costlessly inform depositors about changes in bank performance and risk-taking activities. To provide a pair of parallel rhyming words, we use

maximal deterrency to describe a situation in which depositors would immediately understand the implications of information flows perfectly and would be able to protect themselves completely and costlessly from whatever threat to their wealth this information might reveal.

The more closely an economy comes to offering creditors maximal transparency (MT) and maximal deterrency (MD), the less incremental value that banks and safety-net managers can create for depositors. In an MTMD economy, cash in advance and credit could substitute perfectly for each other in every payment context. Similarly, direct and indirect finance would provide equally economical ways of mobilizing savings, of choosing which real investment projects savers ought to support and of deciding how to price project risk. As envisaged in the Capital Asset Pricing Model, corporate and government securities could be offered in denominations small enough to allow virtually every individual saver to invest directly in a diversified portfolio of stocks, bonds, and derivative securities.

The MTMD thought experiment clarifies that safety nets owe their existence to difficulties of contract enforcement: blockages in information flows; differences in monitoring costs; variation in financial transaction costs; delays in appreciating and processing relevant information; and the costliness and inadequacy of the deterrent remedies that individual depositors have available to them. It also clarifies that a safety net entails a five-party contract. The net imposes mutual rights and duties on: bankers, borrowers, depositors, safety-net managers, and safety-net owners (principally healthy banks and taxpayers). The touchstone by which to judge the performance of safety-net managers is the fairness with which they treat each of their counterparties and the efficiency with which they manage the diverse social costs of coping with divergences from MT and MD conditions.

All real-world economies establish a framework of centralized bank monitoring and deterrent response. Centralizing these functions aims at increasing depositor confidence while solving three coordination problems: avoiding redundant monitoring expense; standardizing contracting protocols; and timing and calibrating disciplinary action. In principle, a centralized monitor-enforcer makes it unprofitable for banks to misrepresent their economic condition to depositors and to pursue profit-making opportunities that might exploit depositors' informational disadvantage. It is not enough for safety-net managers to aim at blocking corrupt and unwise flows of institutional credit and avoiding depositor runs. They must seek also to minimize the social damage caused by temporary bank illiquidity and by lasting bank insolvencies. In administering lender-of-last-resort facilities, safety-net managers are expected to perform the

financial triage function of shielding solvent, but illiquid institutions from having to sell assets into momentarily disorderly markets.

In practice, a safety-net manager must have the expertise to wield six categories of regulatory instruments fairly and efficiently:

1. record-keeping and disclosure requirements;
2. activity limitations;
3. capital, loss-reserving, and other position limits;
4. takeover rights and other enforcement powers;
5. lines of credit; and
6. performance guarantees.

The first four categories define the net managers' authority to regulate the bank; the last two categories provide credible ways for regulators to bond themselves to exercise their supervisory authority in the interests of depositors and other creditors. To complete the web of contract enforcement, taxpayers must be able to observe and discipline the economic value of their stake in the rulemaking and enforcement activities that regulators undertake. Ideally, taxpayers must impose reporting requirements and establish deterrent rights sufficient to persuade net managers to deploy their examination, supervisory, and lending powers at minimum economic cost to society as a whole. These costs must be defined comprehensively and include both the costs of operating the net and the costs of managing its occasional breakdown. Taxpayer-regulator contracting is important because the practical politics of financial regulation tend to make regulatory authorities responsive only to immediate bank and depositor concerns.

A nation's safety net is a multiparty web of contractual duties and obligations whose most palpable features are deposit guarantees and lender-of-last-resort credit facilities. The ideal or optimal safety net is one that efficiently mitigates the particular monitoring and policing difficulties that present themselves to banks, depositors, and taxpayers in the informational, ethical, legal, and economic environment of a particular country at a particular time. This means that the optimal design and operation of a country's safety net must adapt promptly to changes in the market, legal, bureaucratic, and ethical/cultural problems the net is intended to alleviate.

For the web to establish incentives for bank and regulators that are compatible with the interests of all other parties, net design must be environment-specific. As a rule of thumb, information systems and supervisory technology for monitoring bank capital and risk exposures

should be made transparent at least to outside experts and regulatory discipline should mimic market procedures.

Evidence of Variation in Informational Transparency

Depositors want to be sure that deposit interest rates fairly compensate them for the risk exposures that bank loans and investments pass through to them. The "information" needed to benchmark this compensation consists of valid facts and projections that would help a well-trained financial analyst to calculate the market value of bank net worth as the difference between present discounted values of bank assets and liabilities.

When a nation's financial markets inaccurately identify and price risks, they misdirect savings and investment. Such misdirection undermines a nation's economic growth and well-being. It is helpful to think of bank disclosures as ore and information as a mineral that depositors and regulators can, with effort and only imperfectly, extract from this ore. Extraction is imperfect for two reasons: because banks have a legitimate interest in reserving proprietary information for their own use and because they may want to conceal potentially damaging information from other parties.

Bank regulators are supposed to identify and promptly correct material misinformation. The less effectively the ethical norm of "fair dealing" constrains the business dealings of corporate and government officials in a given country, the more thoroughly safety-net managers ought to doublecheck data provided by banks and bank borrowers. However, as a practical matter, strong incentives may push regulators in the reverse direction. The less effectively ethical norms and investigative journalism constrain government officials, the more likely it becomes that safety-net managers may be enlisted to use their instruments to help banks and at least some bank customers to exploit taxpayers.

In financially sophisticated environments, the reliability of disclosures about bank values is tested and disciplined --albeit imperfectly-- by an array of outside parties. Rules governing bank disclosures come both from statutory and administrative law. Statutes are shaped in legislatures. Regulations governing how to value and itemize sources and uses of funds are established by administrative agencies and self-regulatory organizations. Enforcement by rulemaking entities is subject to due-process and constitutional review by a nation's judiciary system.

Dishonest corporate and government reporting is additionally deterred by the knowledge that information flows will also be reviewed informally by private "watchdog institutions:"

professional accountants, credit bureaus, credit-rating agencies, an independent financial press, investment advisors, and even academic researchers. However, the information-verification mission of these watchdogs often conflicts with their other economic interests. Hence, even in high-income countries, interinstitutional competition may be weak, reporting standards may be relatively uninformative, and validity checks on bank and borrower disclosures may allow a great many informational impurities to survive the smelting process.

Recapping the discussion, across countries informational transparency (T) varies with accounting integrity (AI), ethical norms (EN), press freedom (PF), and the quality and credibility of compensating restraints regulators place on financial transactors (R). In symbols:

$$T = T\,(AI, EN, PF; R). \qquad (1)$$

Several research institutions rate in different ways the quality of information available to depositors and taxpayers in different countries. Table 1 reproduces measures of the relative informativeness of a country's accounting standards, the degree of corruption observed in government or business transactions, and the extent of press freedom. The table shows that the quality of relevant information varies greatly across countries. The table also indicates that what we may call accounting and ethical "integrity" correlate positively with press freedom and each other and also with the level of a country's per capita income. Across the 41 countries for which the spottier accounting index exists, accounting integrity and 1990-1995 average real per capita GDP show a correlation of .59, while the correlation coefficient for accounting integrity with ethical integrity and press freedom in this subset of countries is .63 and .40, respectively. The first principal component of the three information variables explains 73.4 percent of their joint variance. For the 66 countries for which the corruption index has been constructed, the first principal component of the press-freedom and corruption indexes explains 80.1 percent of these variable's joint variance and the correlation of ethical integrity with per capita GDP is .80. The index of press freedom (which is actually available for 73 countries) shows an r=.67 with per capita GDP.

These correlations suggest not that the level of development determines the level of informational transparency or vice versa, but that both variables are simultaneously determined by omitted variables. These omitted variables may be interpreted as a culture's shared beliefs about what is tolerable and intolerable deal-making behavior. Using this perspective frames per capita GDP as an imperfect control for evolving social and cultural attitudes that strengthen the enforceability of financial contracts.

For a safety net to operate fairly and efficiently in environments where informational and ethical integrity are low, the policy-making process of selecting design features must be open enough to establish accountability between regulators and taxpayers. Political Accountability increases with the freedom accorded a nation's press and with the political and economic freedoms it grants its citizens to challenge government policies. However, the correlation of measures of ethical integrity with the Freedom House Index of press freedom and Heritage Foundation indexes of economic freedoms suggests that accountability is often weak in the particular countries where it most needs to be strong.

Where accounting integrity meets a threshold standard of informativeness, independent credit-rating agencies can consolidate a bank's accounting disclosures into a broad measure of the risk the bank passes through to its depositors. Using data only on banks whose deposit quality has been rated by Moody's, Table 2 reports annual values for a system-wide "bank credit-rating proxy" from 1987 to 1997. The data show many gaps and cover at most about 50 countries. Still, the number of countries for which it is possible to calculate this proxy is expanding.

For the period 1987 to 1997 and for the much larger sample of countries studied in Table 1, Table 3 displays the percentage of a country's total assets that was held in banks whose deposit quality was rated by Moody's. This table shows that in many low-income countries, a sizeable portion of the banking industry is yet to be rated. In these countries, transparency is so weak that the outside monitoring embodied in the credit-rating proxy provides only an incomplete doublecheck of the reliability of self-reported banking information.

Evidence of Variation in Depositors' Deterrent Capacity

Given a country's level of informational transparency, an individual depositor's ability to protect itself from looming bank or borrower defaults is limited by the deterrent rights and enforcement powers conveyed to contracting parties by its country's legal system. A depositor may be regarded as holding a contingent claim on the stock of its bank. Similarly, a portfolio of stock options written on the bank's corporate borrowers is imbedded in the value of bank's loans. Both sets of stock options come into the money when banks and their borrowers choose to default.

All defects in counterparty rights, in their enforceability, or in judicial and bureaucratic efficiency leave financial markets less complete and banks and bank depositors more vulnerable

to default. Deterrency (D) depends on a country's systems for policing corporate governance (CG) and property rights (PR):

$$D = D(CG, PR; T) \quad (2)$$

Weaknesses in D disadvantage banks as lenders, their depositors as creditors, and taxpayer-owners of the financial safety net. Where counterparty rights are poorly protected, a rational saver will always be reluctant to trust its funds to unrelated parties. Table 4 summarizes cross-country differences in corporate governance, while Table 5 reports measures of broader property-rights protection. These tables show that legal constraints on opportunities for a "controlling-insider" to exploit creditors and minority shareholders differ greatly around the globe.

In each table, countries are grouped by per capita income. Much as we found for the informational-integrity variables arrayed in Table 1, alternative measures of deterrent protections prove highly correlated with one another and the level of deterrency increases on average as per capita income rises. For the 41 countries where the relevant indexes of accounting and ethical integrity both exist, each correlates positively with the various indexes of counterparty protections. The correlation between accounting integrity and the five property-rights indexes in Table 5 ranges from .53 to .67. The correlations the property-rights indexes show with per capita GDP and ethical integrity run even higher, ranging from .77 to .89.

The corporate-governance variables are less collinear than the property-rights indexes. Seven eigenvalues of the corporate-governance covariance matrix exceed the random-correlation benchmark of unity, while only the first eigenvalue of the property-rights matrix does and the corresponding eigenvector is able to explain 84.8 percent of the joint variance. This collinearity in property-rights protections reinforces our contention that unmeasured socio-cultural norms and freedoms drive these variables and encourages us to focus further analysis on the three property-rights variables that are available for most countries.

Although bank credit-rating agencies seek to overcome weaknesses in informational transparency, the profitability of doing this varies across countries with the quality and usefulness of financial information. As a result, the average proxy value (CR) reported for a particular country in Table 2 only covers its principal banks. As measured by CR, reported weakness correlates strongly and inversely with accounting standards ($r = -.58$), indexes of counterparty deterrent rights (the highest individual $r = -.91$), ethical integrity ($r = -.74$), and press and economic freedoms ($r = .63$ and .73, respectively). Because deterrent rights, press and

economic freedoms, and ethical and accounting integrity are so highly correlated, the marginal influence of individual variables cannot be established by their statistical significance in a multiple-regression framework (Belsley, Kuh, and Welsch, 1980). The confluence of opportunistic and disciplinary forces is so strong that at five percent significance, corporate-governance and counterparty protections do not significantly improve our ability to predict the bank credit-rating proxy. Using only the corruption index and per capita GDP as regressors to explain CR for the 51 countries for which CR exists produces satisfactory t-values and an adjusted multiple correlation coefficient R of .81. As a proxy for informational transparency, the significance of the corruption index supports two hypotheses: that informational reliability affects bank ratings and that banking fragility increases as it becomes harder for depositors and taxpayers to monitor banks and bank regulators.

Evidence of Cross-Country Variation in Accountability

No existing data set specifically documents cross-country differences in top officials' accountability for safety-net performance. However, measures of central-bank independence have been compiled for 56 countries by Cukierman, Webb, and Neyapti (1992) and inverse indexes of press and economic freedoms are compiled by Freedom House and the Heritage Foundation, respectively. Each of these indexes proxies to some degree the accountability taxpayers impose on economic policymakers in general. The freer is a country's press, the more readily taxpayers can observe and respond to government policymaking decisions. Similarly, the less coercive are a country's economic policies, the easier it is to observe circumventive behavior that both limits and underscores the potential damage that inefficient or unfair policies might otherwise generate. Finally, for central-bank officials, complete legal independence is the opposite of political subservience. Cukierman et al. (1992, pp. 380-381) produce a measure of the extent to which central-bank officials have the authority and autonomy to pursue the goal of price stability even when this goal conflicts with other government objectives. By extension, the more politically independent is a country's central bank, the more readily taxpayer can hold its top officials responsible for the macroeconomic effects of the supervisory policies the bank adopts.

Like most other variables, central-bank independence and press and economic freedoms prove significantly correlated with GDP, with correlation coefficients running as high as .69. We interpret the marginal explanatory power of cross-country declines in central-bank

independence or increases in economic repression as evidence of taxpayers' inability to hold safety-net managers accountable for the costs of the policies they follow.

Evidence of Cross-Country Variation in Banking Market Structure

This section considers how the influence of transparency, deterrency, and accountability might be affected by the level of banking concentration. In countries where actual competitors are few and entry protections are effective, the net interest margin between loan and deposit interest rates is apt to be high. Given an opportunity to extract monopoly rents from their customers, incumbent banks would be apt to charge interest rates on loans that lie above their marginal funding costs and to pay interest rates on bank deposits that lie below their marginal value to the bank.

In the 72 countries for which both banking-market indexes exist, the three-firm concentration ratio and net interest margin are negatively related to GDP ($r = -.29$ and $-.22$, respectively). However, the banking concentration ratio does not reliably correlate with the net interest margin. The correlation between the net interest margin and the three-firm concentration ratio is an insignificant .14. The best predictor of a country's net interest margin in our data set is the Heritage Foundation's inverse measure of the average expected inflation rate ($r=.47$). At 5-percent significance, neither banking concentration nor the net interest margin is significantly correlated with press freedom or accounting and ethical integrity and both variables show few reliable correlations with deterrent rights. However, the concentration ratio is correlated with economic repression ($r \approx .30$ for five of the Heritage Foundation's indexes). Observing a correlation between banking-market concentration and economic repression suggests that a country's banking market structure is flattened by events that increase customer opportunities to transact more freely.

To persuade government officials to resist entry requires local bankers to devise a politically workable way of sharing government-generated rents with friendly politicians and regulators. Deducting the side payments a bank makes to support entry protections produces what we may call its net regulatory rent.

In principle, the capitalized value of the projected future net regulatory rents an incumbent bank can earn is an intangible asset that influences a bank's earnings, stock price, market capitalization, and credit rating. However, technological change continually undermines the effectiveness of the entry barriers a country erects by expanding avoidance opportunities for customers and outside institutions. Monopoly rents create incentives for customers and foreign

banks to use technological advances as a way of innovating around government restrictions. In a world of rapid technological change, enlisting the aid of government officials can only temporarily slow the rate of outside entry. Thanks to the communications and information revolutions, globalization is driving the capitalized net value of entry-restriction rents to banks in high-barrier countries toward negative values. The benefits that entry restrictions deliver to local banks are eventually forced below the costs of cultivating the political influence necessary to support them. Once the profitability of local banks becomes dependent on the favors of government officials, schemes for compensating friendly officials impose tax-like influence-peddling costs that --as banking market structures meld globally—are eventually bound to exceed the benefits that entry restrictions can reasonably produce.

Over time, entry tends to benefit host-country customers by pushing loan and deposit interest rates in their favor. This kind of path dependence makes it impossible to sign a priori the effect that banking market structure has on safety-net design. The more important efforts to limit banking competition to sustain bank profits have been in the past, the more rapidly financial innovation can enable foreign and domestic nonbank competitors to wean high-margin business away from local banks today. Where a country's market structure is in transition, banking concentration is more apt to be a sign of large banks' local political clout and vulnerability to outside competition than of their continuing capacity to earn monopoly profits.

III. Cross-Country Differences in Safety-Net Design Features

In the absence of MT and MD, depositors must watch for harm from two directions:

1. from past losses that bank insiders have managed (possibly with regulatory connivance) to conceal from public view;
2. from hidden exposures to future losses from illiquidity, bad luck, incompetence, negligence, fraud, corruption, or zombieness.

For the safety net to efficiently and fairly protect depositors from these dangers, the net's managers must incorporate design features into the mesh that counter the particular weaknesses in transparency and deterrency that characterize financial transactions in their country. For best results, the reasoning leading to particular design decisions should be made transparent to taxpayers, so that outside analysts can challenge and deter decisions that threaten to harm the public interest.

In most countries, the major element of the safety net is deposit insurance. Table 6 presents data on the major ways that deposit-insurance coverage, management, pricing, and funding differ across nations. Like most of the data presented in this paper, all but one of the variables (the coverage limit) are classificatory in character and lack a natural scale. Since the foreign-exchange value of each local currency limit fluctuates over time, even the coverage limit cannot be converted to a time-consistent cross-country scale.

The most important difference is whether the guarantees provided to depositors are made partially explicit or left completely implicit. Guarantees are explicit when they are embodied in enforceable obligations that may be collected from the insurer's assets as a matter of law. Explicit systems are usually funded from ex ante premiums or ex post assessments imposed on eligible institutions. Although implicit deposit insurance is by nature unfunded, it is important and exists always and everywhere that banks are formally chartered by a specific government. Guarantees are implicit when their enforceability depends on public confidence in the strength of recognized political incentives for a country's leaders to bail out or rescue stakeholders in banks that become economically insolvent. Even in an explicit system, a degree of implicit insurance comes from the discretion authorities have to treat troubled institutions mercifully. An incipient banking crisis creates political incentives for incumbent officials in any government with an explicit system to extend regulatory forbearances, subsidized loans, and unfunded de facto coverages that exceed the formal limits specified in the nation's laws and regulations. Also, in many countries, one or more banks are state-owned. For such banks, implicit deposit insurance is widely perceived to be absolute.

During the 20th Century, socio-cultural expectations and cross-country pressures have added deposit insurance to the mix of baseline governmental responsibilities in many countries. Because implicit insurance always exists, whatever explicit limits a government places on the insurance it writes matter less than it might formally appear. Politicians reserve options to extend coverages beyond formal limits at taxpayer expense when and if that serves politicians' collective interests. The probability is far from zero that extracontractual coverage will be provided when market-mimicking regulatory discipline would better promote taxpayer interests.

Explicit deposit insurance can easily constitute an entry-deterring barrier to exit. This occurs when deposit insurers allow troubled and inefficient deposit institutions to survive beyond what we could call their "natural death." Instead of assuring the prompt exit of firms that make crippling mistakes or allow themselves to become insolvent for any reason, deposit insurance can

narrow the industry's "exit drainpipe." When hopelessly insolvent "zombie" institutions are supported by government guarantees, they bid down profit margins in the industry to unsustainably low levels that render competing firms unprofitable. This is most likely to occur when politicians are unwilling to allow these institutions' contribution to politically inspired credit-allocation programs to be disrupted.

In the United States, pressure that built up in the exit drainpipe starting in the mid-1960s was released in the 1980s by an explosion of belated deposit-institution exits. Many now-departed firms were living-dead institutions whose insolvency could and should have been resolved long ago. Some of the others were marginal institutions that might have survived had their competitors' profit margins and risk-taking incentives not been allowed to become badly distorted.

It is important that society keep in place economically reasonable exit pressure on poorly performing deposit institutions. When deposit insurance retards exit, new entry is discouraged and healthy competitors and taxpayers are routinely required to help ruined firms to keep themselves in play. Such a policy encourages the overexpansion of very high-risk enterprises and assigns taxpayers a badly structured option on the stock of failing banks. Taxpayers are required to pay off future losses but receive very little opportunity to participate in gains. The most that taxpayers can receive from a troubled institution is relief from the loss exposure to which bailout arrangements have committed them.

Table 6 documents that, during the 1980s and 1990s, countries in many regions adopted explicit deposit insurance. In Asia and Europe, explicit deposit-insurance guarantees often extend even to accounts whose value is denominated entirely in foreign currencies.

Figure 1 indicates that explicit insurance is part of the "best practices" policy standards promulgated in IMF policy reports (Lindgren, Garcia, and Saal, 1996 and Garcia, 1999). Whether these standards are in fact wise advice is the principal policy question addressed in this study. Introducing explicit deposit insurance imposes costs as well as benefits on any society that adopts it. The major cost is to diminish depositor discipline on bank risk-taking by strengthening the implicit guarantees that government officials otherwise convey. Explicit arrangements reinforce implicit guarantees by providing bureaucratic and political mechanisms for patching weak banks.

Where transparency, deterrency, and acountability are weak, installing explicit insurance may be a great mistake. In contradistinction to the IMF, we hypothesize that the ambiguous and

unfunded nature of purely implicit deposit insurance leads depositors in poor informational and contracting environments to demand a risk premium that is broadly commensurate with the risk-taking capacity of their bank.

The more completely and more reliably government or private insurers cover depositors against loss, the less incentive individual depositors have to police the risks their banks can or do take. An unintended perversity of credible deposit insurance is that it undermines a depositor's interest in ethical responsibility to look out for itself by gathering information about an institution's financial condition and by reacting to bad news about this condition as soon as it is received. This anesthetization of depositor concern permits minor bank insolvencies to fester and grow into deep insolvencies if the incentive system under which regulators labor leads them to duck rather than confront supervisory problems.

Whenever a country's banking system is visited with overwhelming losses, bank stakeholders may be expected to twist the controls of representative government to extract taxpayer assistance. Introducing explicit deposit insurance is attractive to stakeholders of zombie banks as a device that can end a crisis and temporarily rescue a deeply troubled banking system without requiring the embarrassment of explicitly recognizing bank losses or imposing new taxes. When explicit deposit insurance is introduced in crisis circumstances, the immediate benefits of the banking-system rescue inevitably come at the expense of longer-run deterioration in supervisory and bank risk-taking incentives. Because explicit insurance reduces depositor pressure for transparency and deterrency, opportunities for engaging in unsound and corrupt banking practices will expand unless government banking supervision strengthens apace.

Typically, adopting explicit insurance as an emergency measure threatens to enhance the danger of deeper future crises. In crisis circumstances, insurance authorities seldom receive sufficient monitoring and policing authority to compensate for the depositor discipline their deterrent activity is bound to displace. Moreover, even in cases where the insurer's deterrent powers are sufficient in principle, safety-net managers are not made adequately accountable for using these powers in the interests of society as a whole. When these critical design features are compromised, explicit deposit insurance encourages a nation's banks to direct a considerable amount of credit to imprudent longshot investment projects that promise to waste a nation's scarce savings and reduce the present discounted value of its aggregate stock of real capital.

Confirming these concerns, Demirguç-Kunt and Detragiache (1998 and 1999b) find that, when they control statistically for the impact of exogenous crisis-generating forces, the

likelihood of undergoing a banking crisis is higher in countries that have adopted an explicit deposit-insurance system than in countries in which guarantees of bank deposits are entirely implicit in character. A companion paper (1999a) by these same authors shows that open banking crises are likely to follow the lifting of binding interest-rate ceilings on deposits and that the likelihood of a crisis is higher in countries where "the rule of law is weak, corruption is widespread, the bureaucracy is inefficient, and contract enforcement mechanisms are ineffective." In these environments, capital-impaired institutions are not identified and disciplined quickly enough to avoid massive losses to insuring agencies and their taxpayer-owners. The combination of virtually complete coverage and resolution delay encourages depositors to allow weak institutions to increase risky positions until the aggregate losses become too large for the insurance system to credibly support.

In principle, several deposit-insurance design features can constrain banks' ability to exploit weaknesses in transparency and supervisory deterrency. Market discipline can be generated by assigning private parties a clear margin of responsibility for absorbing at least some of the losses an insolvent bank accrues. The value to society of incorporating such privatizing features turns on the credibility of the expectation that government officials will force private parties to live up to their contractual responsibilities and the presumption that loss-sharing private parties will not let government procrastination expose them to increasing risks.

One way to privatize bank loss exposures is to make private parties underwrite and manage some or all of the deposit-insurance system. In Table 6, when the column labelled "Management" shows a "2," the deposit insurance system is jointly managed by private and governmental entities; when it shows a "3," responsibility for insurance is formally private.

Another way to constrain bank risk shifting is to insist that formal insurance coverage be truly incomplete. Most countries specify an upper limit to the size of deposit balance that is explicitly protected. Relatively few countries extend formal coverage to interbank deposits or accounts denominated in foreign currency. However, the Long-Term Capital Management rescue clarifies how easily and unaccountably coverage limits can be breached.

The modern literature on deposit-insurance reform stresses the social benefits of private coinsurance as a mechanism for disciplining and uncovering regulatory mistakes (e.g., Calomiris, 1998; Kane, 1992). Coinsurance means that depositors are contractually required to bear a share of their bank's accrued losses when their bank fails. This share may be defined as a

combination of a nonindemnifiable loss-sharing percentage and a fixed amount that the insurer deducts from each depositor's reimbursable insurance claim.

Although benefits of coinsurance cannot be realized without assured enforcement, they can be realized without turning each and every depositor into a loss-bearer. What matters is to assign to a designated class of private monitors the information and incentives they need to control bank risk-taking. About 15 countries make at least some depositors coinsure bank losses. In practice, putative loss bearers are either very large depositors, bonding companies, or subordinated debtholders.

Presumptions of politically enforced implicit coverages are particularly strong among depositors of state-owned banks. To investigate the effect of this presumption, we use the La Porta, Lopez-de-Silanes, and Shleifer (1999) cross-country index of the relative importance of state-owned banks (GB, for Government Banking presence). GB measures the percentage of aggregate assets in a country's ten largest banks that were controlled in 1995 by state-owned institutions. The index runs from precisely zero in about eight countries to precisely 100 percent in three others. The index is particularly high in socialist and ex-socialist countries. The median percentage is about 40 percent in Middle Eastern, Asian, and Latin American countries, and is notably lower for the so-called industrialized countries of Europe.

The GB variable is significantly and negatively correlated with GDP (-.34), all of the property-rights and information measures (the median r=-.40), economic freedom (r=-.58), and three corporate-governance variables. These correlations support the hypothesis that government banking presence is likely to be larger in environments where informational integrity, deterrent rights, and accountability are weak.

IV. Correlating Deposit-Insurance Design Features with Individual-Country Characteristics

Contracting theory emphasizes that counterparties face strong incentives to minimize the costs of agency. Black, Miller, and Posner (1978) conceive of a country's deposit insurers as "stepping into the shoes of individual depositors." This conception clarifies that, absent outside pressure from international institutions, conscientious officials in individual countries would design their portion of the safety net to cope with the particular deficiencies in transparency and deterrency that depositors face in their country's financial and economic environment.

This section builds on cross-country data on deposit-insurance characteristics first assembled by other researchers (e.g., Talley and Mas, 1990; Kyei, 1995; Goldstein and Turner,

1996; Lindgren, Garcia and Saal, 1996; Garcia, 1999; and Demirguç-Kunt and Sobacı, 2000). The analysis seeks to show that observable characteristics of a country's deposit-insurance system correlate significantly (at the five-percent level) with some of the proxy measures for transparency, deterrency, and accountability we have identified. Confirming that sensible bivariate correlations exist supports the hypothesis that cross-country differences in transparency, deterrency, and accountability matter. The policy implication of this finding is that IMF and World Bank personnel should recommend changes in the structure of a country's existing safety net only after carefully analyzing the impact each proposed structural change promises to have on transparency, deterrency, and accountability.

Explicit vs. Implicit Coverage

We define "expliciticity" (E) as the binary variable which codes a country that offers depositors explicit guarantees as one and which assigns a zero to countries that offer only implicit deposit insurance. Expliciticity is insignificantly correlated with government banking presence (r=-.08). However, expliciticity does correlate significantly and sensibly with other potential determinants: with per capita GDP, the corruption index, the three accountability indexes, the rating proxy, the concentration index, the first two property-rights indexes, and nine indexes of corporate governance. Countries with substantial press and economic freedom, low banking concentration, central-bank independence, good property-rights scores, good rule-of-law scores, German or Scandinavian legal origins, and high per capita GDP are apt to have explicit deposit insurance. Countries that restrict managers' ability to block shareholders from voting and to disadvantage creditors in various ways are significantly more apt to restrict themselves to implicit deposit insurance. The explicit-insurance dummy variable shows a strong correlation with the fiscal-capacity variable, per capita GDP (r=.42). Among the corporate-governance variables, the highest correlations occur for the management-does-not-stay dummy (r = -.63) and the index of creditor rights (r = -.55). Unless a creditor has access to reliable public information and the capacity to win and exercise deterrent rights, it is unlikely that a country's insurer could be relied upon to wield taxpayer rights effectively either.

Three corporate-governance indexes are always associated with explicit deposit insurance: German legal origins; no automatic stay on creditors' right to the secured assets of a reorganizing firm; and creditors' ability to restrain managerial efforts to throw their firm into a court-protected reorganization. As a predictor of expliciticity, a probit equation that uses the management-does-not-stay dummy as its sole explanatory variable achieves a pseudo-R^2 of .36

in the 47 countries for which both variables are coded. Introducing per capita GDP or indexes of accountability in stepwise fashion cannot significantly improve upon the benchmark performance of this straightforward creditor-rights explanation.

An alternative way to generate a benchmark equation for E is to consider as predictors the first few eigenvectors of the 17x17 covariance matrix of corporate-governance variables. Such eigenvectors are frequently called "principal components." The first three principal components of the larger set show correlation coefficients of -.49, +.23, and .25, respectively. When all three are inserted into a probit model, only the first component is significant and the pseudo-R^2 is .285.

Privatization Features

Conventional wisdom maintains that private-sector funding and involvement in deposit-insurance management enhances regulatory incentives to monitor and discipline inappropriate bank risk-taking. Private loss-bearers are expected to press for risk-control systems that substitute economic efficiency for political expediency.

Private participation in deposit-insurance management (PM) is significantly and positively correlated with all five property-rights indexes, with confiscation risk and rule of law showing the highest coefficients (.42 and .44, respectively). Private management participation also correlates significantly with per capita GDP (r=.51), ethical integrity (r = .50), press freedom (r=.43), and most measures of economic freedom ($r \approx .34$).

A probit model that recodes private management as unity and joint or government management as zero and uses confiscation risk and press restriction as explanatory variables achieves respective z-values of 2.54 and 2.11 and a pseudo-R^2 of .46. This equation supports the hypothesis that reliable press reports and rule-of-law deterrent rights are necessary before taxpayers and depositors can be persuaded to put much confidence in a private fund. Introducing per capita GDP and bureaucratic quality in stepwise fashion does not significantly improve the model's predictive performance. An alternative benchmark probit equation using the first principal components of the property-rights and information variables achieves a pseudo-R^2 of only .25.

Whether a country explicitly funds its deposit-insurance obligations from bank or government sources correlates significantly with per capita GDP (r=-.35), the focal three property-rights variables ($r \approx -.37$), and preemptive rights (r=-.45). The negative sign of these

correlations broadly supports the hypothesis that as a device for creating public confidence explicit funding can partly offset weaknesses in deterrent rights and government fiscal capacity.

Binary variables for other privatization features are not significantly correlated with per capita GDP, central-bank independence, nor with any of the informational-integrity variables. However, some other privatization features do correlate with one or another of the property-rights and corporate-governance variables.

Figure 2 depicts the cross-country trend in adopting explicit insurance over time. For 66 of the 68 adopting countries, we found data on 1995 GDP at market prices. In this sample, the date of a country's adoption correlates negatively with GDP and positively with press freedom and ethical integrity. The following regression equation uses YR to represent the year of adoption and GDP to represent 1995 GDP in billions of U.S. dollars:

$$YR = \underset{(t=1404.6)}{1988.3} \; \underset{(t=-5.67)}{-.00067GDP}, \quad R^2 = .32, N = 66$$

Many recent adoptees show extremely low per capita GDP and a contracting environment that is so lacking in credibility that it doesn't even register on some of the radar screens from which we have constructed proxies for transparency, deterrency and accountability. The 40 adopting countries in our principal sample all had explicit insurance by 1998. For these 40 countries, the binary variable designating whether coinsurance exists (CI) correlates significantly only with confiscation risk (r=.39) and the condition of being funded partly or exclusively from government sources (r = -.42). Nevertheless, all 13 countries in our sample which give shareholders a preemptive right to buy shares in new issues formally incorporate coinsurance into their deposit-insurance system. Using per capita GDP and the first principal components of information, corporate-governance, property-rights, and accountability variables fails to establish a satisfactory benchmark probit model for CI. No individual coefficient proves statistically significant and the pseudo-R^2 is only .14.

V. Principal-Components Analysis of Design Features

For the sample of countries for which data on design features could be assembled in early 1999 Table 6 reports on eight focal dimensions of individual-country safety nets. These include E, CI, PM, whether and how guarantees are funded, the existence of nominal coverage limits, involuntariness of membership, and whether foreign-denominated and interbank deposits are also insured. The collinearity we can observe in the design features suggests that we might use

principal-components analysis to fashion a few summary measures of the net's character (Demirguç-Kunt and Detragiache, 1999b). Principal-components analysis estimates linear combinations of features ("factors") that reproduce the covariance observed in individual elements. Eigenvectors of the covariance matrix whose corresponding eigenvalue is less than unity are presumed to express random covariance.

Table 7 shows that only the first three eigenvalues of the covariance matrix of the eight major design features exceed unity. Cumulatively, their corresponding factors explain 61.6 percent of the variance in design features.

The coefficient loadings that each principal component assigns to individual features sometimes allow us to interpret them economically. The first component is a summary measure of the degree to which the net is subject to private market discipline. This factor places heavy weights on PM, net funding from private sources as opposed to government sources, and coinsurance. The second component measures the breadth of the bank liabilities the net covers. It assigns very high weights to the binary variables for compulsory membership and coverage of foreign-denominated liabilities. The interpretation of the third component is more problematical. However, to the extent that a system's nominal coverage limits lack credibility, it is fair to regard limits as potentially disinformational devices for concealing growth in implicit government guarantees. Granting the need to delete countries where accountability can be established on other grounds, a case can be made for treating the third factor as a proxy for the extent of taxpayer susceptibility to hidden risk shifting by banks. Table 8 reports the value of the three factors for each of the 40 countries whose design features we analyze.

VI. Accountability for Implicit Coverages As a Design Feature

No other index specifically addresses cross-country differences in accountability for the cost of implicit guarantees. We have emphasized that every country's safety-net managers are pushed and pulled in contradictory directions. On the one hand, managers are expected to minimize the risk of a banking disaster. On the other hand, they are expected to minimize the cost of supporting troubled banks by subjecting banks to market-mimicking disciplines. Because exercising market-mimicking discipline would help depositors to identify weak banks, a hard-nosed net manager may expect to be blamed after the fact if a disruptive bank run ensues. This expectation imposes on every net manager a painful tradeoff between the immediate bureaucratic and reputational benefits that can be reaped by being merciful to troubled banks and the

unmeasured long-run costs that an insolvent bank is apt to shift onto taxpayers when its insolvency is not resolved promptly.

Society must recognize the problem that opportunistically covering up evidence of banking trouble and engaging in costly regulatory forbearance is a rational managerial response when safety-net officials derive reputational and personal benefits from the strength of their political support. This incentive conflict is not easily resolved. Even a privately managed and funded deposit-insurance scheme enjoys implicit catastrophic taxpayer back-up. This means that formal privatization efforts are never complete. The taxpayer remains a silent partner whose stake in implicit guarantees is both unfunded and unlikely to be formally acknowledged by the fund's managers. Unless regulatory decisions take place in a MTMD environment for taxpayers, no practical way exists to make safety-net managers fully accountable in a timely manner for managing taxpayers' economic stake in the safety net.

Taxpayers' stake consists of the value of the support they provide by explicitly and implicitly backing up the obligations of whatever government guarantees exist. In the absence of taxpayer back-up, private and government deposit-insurance managers would have to expend additional resources each year to convince their fund's counterparties that the managers can be relied upon to fulfill their contractual commitments (Merton and Perold, 1993). The capitalized value of this incremental reduction in expenses may be defined as the "risk capital" taxpayers contribute to the deposit-insurance system. Unless taxpayer-contributed risk capital earns a fair market return, deposit-insurance schemes end up subsidizing bank risk-taking.

Whenever the informational environment makes it practicable, it is desirable to make specific officials responsible for measuring the aggregate losses to which the safety net exposes taxpayers and to price and manage this exposure appropriately. However, especially in environments where reliable information is scant and corruption is rampant, adopting explicit deposit insurance with nominal coverage limits may expand implicit guarantees and short-circuit imperfect, but socially beneficial depositor discipline on bank risk-taking. In the long run, such societies are apt to pay a high price for substituting unaccountable government supervision for value-driven private supervision.

Three Ways to Improve Accountability

To guard against unhappy results, political independence for safety-net officials is not enough. A country moving to explicit deposit insurance would be well-advised to incorporate design features that promise to generate helpful private discipline on safety-net managers and

bankers alike. Broadly speaking, economists have identified three such design features. Although each of these features can improve supervisory incentives at the margin, none of them offers taxpayers enough transparency or deterrency to make safety-net managers fully accountable for the consequences of their disciplinary strategies and procedures. For this reason, safety-net designers should plan to deploy all three approaches in tandem.

1. Improved Public-Service Contracting

The first design feature is both more straightforward and less practicable than the other two. It focuses on strengthening the contractual incentives of government officials to intervene in the affairs of every troubled bank before the bank can impose a loss on the insurance fund. Unless informational and ethical integrity have evolved to a critical level, this is unlikely to be a feasible policy strategy. Until managerial rewards for good performance and penalties for bad performance can be tied to reliable and observable indexes of the ongoing quality of safety-net management, it is hard to see how to formulate an enforceable incentive-based contract.

This underscores once more the central role transparency plays in safety-net design. It tells us that a good starting point for improving public-service contracts for bank regulators is to insist that authorities take steps to make bank risk more visible to outsiders. In particular, a positive obligation might be placed on banks to compile marked-to-market estimates of bank capital positions and to report promptly all material changes in individual-bank risk exposures and capital to regulators. Alternatively, banks that do not make mark-to-market could be required to hold substantially higher levels of accounting capital and to be subject to particularly severe penalties for failing to disclose material adverse information.

Once such information became available, government regulators could be obliged to calculate in a reproducible manner how events affect the opportunity-cost value of deposit-insurance risk exposures in individual banks and to intervene promptly in the affairs of overextended banks to resolve their capital shortage in a market-mimicking manner. Accountability for these activities could be established by having regulators' calculations closely audited by a multinational private accounting firm and by offering top regulators' in each country deferred compensation that is expressly tied to annual movements in the net unreserved value of implicit and explicit deposit-insurance exposures. This compensation would be forfeited by the members of any management team whose calculations are discredited by subsequent events. Fostering an information framework that makes government officials more

accountable would have the additional value of making strategies for privatizing some of the safety net work more effectively.

2. Extended Liability

The second design feature seeks to curtail the benefits that stockholders of insolvent banks and other financial institutions can receive from engaging in go-for-broke risk-taking. This can be done by extending stockholder liability for liquidation losses beyond the level of the paid-in capital accumulated at the corporate level. Historically, several now-industrialized countries (including the U.S.) imposed extended liability on bank shares when their banking systems were still rudimentary.

For deposit insurers, extended liability has the advantage of increasing transparency, deterrency, and accountability at the same time. It increases transparency by transforming movements in the stock price of publicly held banks into a clearer signal of developing strength or weakness. As compared to a limited-liability shareholding, the deterrency comes from stockholders' duty to pony up additional funds if (but only if) managers and regulators allow the bank to become so insolvent that it passes into liquidation. For this reason, an extended-liability obligation would barely affect the stock price of a well-managed and adequately capitalized bank. However, with extended liability, the insurer's right to liquidate an insolvent bank carries a put option that lets it collect a designated amount of personal assets from every bank stockholder. Stock markets would imbed the value of this option into the price of each bank's shares. The value of the option would be negligible for banks that were performing well and adequately supporting their risk with enterprise capital. However, the put would become increasingly valuable when and as a bank took poorly supported risks or fell into serious trouble. Moreover, in environments where the chance that stock-market participants might over-react to bad news is strong, the deterrent effect of extended liability would be particularly forceful. By increasing the sensitivity of bank stock prices to changes in bank earning power and earnings volatility, extended liability would encourage information-revealing stockholder runs on troubled banks well in advance of their deterioration to zombie condition. These stock sell-offs would protect depositors by helping safety-net managers to identify institutions that deserve increased supervisory attention long before the enterprise-contributed capital of these institutions could be exhausted.

Extended liability also increases accountability. This is because adverse stock price movements put public pressure on regulators to investigate and take remedial action. They also

raise the news value to the financial press of reporting regularly upon regulatory actions and their effects. To make sure that extended-liability assessments can be collected promptly from failed-bank stockholders, it would be reasonable for authorities to require stockholders to bond their extended-liability obligation by depositing a pool of relatively liquid earning assets in a collateral account at the central bank. Where appropriate, this account might impose some kind of currency hedge and even be held in safekeeping at the insured institution. It is important to see that neither transparency nor deterrency requires that the particular assets in the collateral pool be frozen. Stockholders could be free to move individual assets into and out of the pool over time as long as settlement float is avoided and the aggregate market value of the collateral account can be continuously verified. Just as in an ordinary margin account, if the total value of the pool falls below a specified threshold value, it must be promptly replenished. If it is not, the custodian must be empowered to force the sale of the securities involved.

For any economy that ranks low in informational and ethical integrity, extended liability is an elegant solution to the problem of deposit-insurance risk-shifting. This is precisely why it promises to be difficult to build an effective political constituency for it. Bank stockholders will resist the efforts to narrow their risk-shifting option and in many countries, regulators will be reluctant to acknowledge the relevance of the side payments that limited liability generates for them. Still, extended liability provides a way of driving an observable market-driven wedge between the economic interests of ethical and unethical bankers. It can be framed most persuasively as an alternative to more intrusive government supervision of bank activity and as a strategy that would have little impact on banks that manage to stay healthy.

3. Selective Privatization

The third design feature is to privatize "appropriate" parts of the insurance fund's aggregate loss exposure in three potentially complementary ways. Doing this would simultaneously privatize the monitoring and loss-control responsibilities that attach to these particular positions.

a. Private-Public Insurance Partnerships

The first approach is to establish in countries that choose explicit deposit insurance a private-public partnership in loss control. The partnership would seek to assign the government only the catastrophic risk and the particular loss control functions that are associated with bearing catastrophic risk. An immediate problem in implementing this scheme is to find ways to separate catastrophic risks from the privately insurable risks that private parties in a given society

can credibly insure. A practicable screening criterion would be to insist that plan sponsors establish just how satisfactorily the insurance functions they propose to transfer could be managed in the private sector in a crisis environment.

The private deposit insurers would technically function as "sureties." They would act as third-party guarantors that bond particular deposit obligations that an insured bank offered its customers. The deposit-insurance law would insist that banks contract with a private surety to accept responsibility for absorbing the first "X" thousand dollars of losses that accrue to any deposit account if the bank were liquidated. This responsibility would lead private sureties to take over the first line of examination and loss control at every insured deposit institution. Government officials would become managers of what may be characterized as an "overline" insurer. This layering would leave officials responsible for reviewing and ratifying the capitalization and loss-control strategies of each authorized private surety. The result would be that, except during a phase-in period and to test the monitoring performance of individual sureties, government authorities wouldn't regularly examine individual banks. The private sureties would be examined and supervised by the government insurer to contain two catastrophic risks: (1) that one or more private sureties could not cover their obligations to depositors and (2) that losses in insured institutions could become large enough to exceed the maximum value of private coverage.

The privatization plan put forward in Kane (1992) has six basic elements. First, insured deposit institutions would be required to carry a minimum layer of private insurance. Second, insured institutions could contract for amounts above the minimum, but would be required to publicize this fact. Third, an insured institution could offer any and all services for which an authorized carrier was willing to underwrite the pass-through risk during the bonding contract's specified period of coverage. Fourth, if at the expiration of the surety bond the carrier was unwilling to renew at least the minimum coverage, the deposit institution would have only three choices: to improve its risk profile to re-qualify itself for coverage; to find another carrier; or to be declared in default and taken over by authorities who would be responsible for liquidating or reprivatizing the bank in a cost-effective manner. Fifth, although individual sureties might operate in many countries, to assure transparency, authorized carriers would have to be organized as publicly traded single-line entities and required to issue an array of publicly traded bills and bonds whose maturity structure would encourage market participants to assess their risk exposures and loss-control systems at regular intervals. Finally, each private surety would itself

be subject to carefully targeted government oversight. Estimates of the loss exposure in a surety's operations would have to be communicated regularly to the government overseer in each country in which the surety operates. If authorities judge that the surety's reserves have fallen to an inadequate level, prompt recapitalization would be required for it to continue operating as a deposit surety in that country.

To reduce the social costs of deposit insurance, the private surety must be designed to produce stronger incentives to monitor and deter inappropriate bank risk-taking than a government surety would face in the same informational and contracting environment. Privatizing monitoring and disciplinary functions transforms –but does not eliminate—the incentive conflicts that lead government officials to cover up silent runs and to underdiscipline troubled banks (Aspinwall, 1992). Irrespective of whether a surety is publicly or privately owned, its managers are partners in banks' risk-taking outcomes. Surety managers are going to worry that revealing or openly responding to adverse information about client banks may trigger depositor runs and crises for which the surety will have to absorb blame. This gives each surety an incentive to overlook and hide deficiencies at large institutions.

However, a critical difference exists in the strength of this incentive at private and government entities. Without access to unpriced taxpayer risk capital, private managers must fund at least some of their losses explicitly. Managers of a government insurance fund can better conceal the costs of offering inappropriate forbearances to insolvent clients and even to its partner sureties. Except in open crisis, it is virtually impossible for outsiders to associate incremental changes in the cost of financing government debt with changes in the performance of a particular government enterprise. To complete the scheme, the back-up government catastrophic-risk insurer should be required to have outstanding stock and bonds (Kane, 1992; Wall, 1997). The market value of these securities would be sensitive to outside estimates of changes in the firm's operating costs and financial condition. As Kane (1992, pp. 71-72) explains:

> [W]henever poor or self-interested management allows a private surety's loss exposure to begin to overwhelm its gross reserves, two corrective forces come into play. First, the surety's guarantees become increasingly less credible. This causes the demand for its services to fall. It also increases the intensity of the regulatory scrutiny it receives from private rating agencies and state insurance commissioners. Second, since a fall in demand makes the surety's earnings decline, the market value of the surety's stock and outstanding guarantees decrease also. The decline in stock price creates pressure for the corporation's stockholders and creditors to press for better management and for outside parties

to take over the firm either to liquidate it or to manage its affairs more effectively. It is important to see that, in informationally efficient financial markets, these forces would exert themselves irrespective of accounting tricks that permit the managers of a private surety to keep their firm's financial weakness from being formally reported in its balance sheets and income statements.

These market forces cannot operate dependably in information-poor environments. They require liquid capital markets in which traders can reap large rewards from researching each private surety's financial condition, contracting protocols, loss-control policies, and denials of coverage. Implementing this design feature begins with identifying particular firms that might be willing to invest sufficient amounts of capital to operate a surety efficiently. Although bonding activity has been a traditional province of insurance companies, Ely (1986) has long argued that large banks are in a good position to sponsor sureties. However, in most low-income and middle-income countries, financial markets are not highly competitive. In such circumstances, if explicit deposit insurance exists, it makes considerable sense for surety bonding to be underwritten largely by reputable foreign financial firms. This would allow each surety to diversify individual-country risks and would constrain the ability of politicians in particular countries to interfere covertly with the surety's monitoring and disciplinary efforts.

Still, no one should suppose that a public-private deposit-insurance partnership can be made solid enough to eliminate the threat of financial crises. In a world in which technology and science regularly devalue old ways of doing things, a succession of previously profitable enterprises are bound to become inefficient and have to be shut down. When the plug is pulled, institutions that have lent money to these enterprises will be asked to absorb some of their accumulated losses. The purpose of the partnership structure is to contain financial losses as far as possible to people and institutions that volunteer explicitly to put themselves in harm's way. Holding these volunteers accountable for engaging in loss-control activity should reduce the chance that financial-industry losses will pass through to a country's taxpayers who never meant –nor in any way wanted—to be saddled with responsibility for losses.

b. Subordinated Debt

Without formally introducing private sureties, it is still possible to shift some of the same responsibility for monitoring and disciplining bank risk-taking to private parties. The central goal of the second approach is to create a tier of bank debt that stands between depositors and stockholders and to keep the tier thick enough to absorb whatever losses the bank might experience. The protective tier of debt is said to be "subordinated" to deposits, because

whenever an insolvent bank falls into liquidation, the subordinated debtholders cannot receive any funds until depositors have been paid off in full.

To protect its stake in the bank, a subordinated debtholder has a strong incentive to negotiate covenants that give it the capacity to monitor the bank and to limit the extent to which bank risk-taking exposes the debtholder to loss. Once a firm decides to use subordinated debt, stockholders have an incentive to minimize interest cost by accepting appropriate covenants (Smith and Warner, 1979).

Still, in many respects, reliance on subordinated debtholders and private sureties raise similar economic and bureaucratic issues. In both cases, private securities are being created with the intention of letting their changing market values publicly signal bank weakness in timely fashion. In both cases, difficulties in renewing the private contract can force a bank to reduce its risk-taking or be closed. In both cases, the likelihood of depositor runs is reduced by the knowledge that private loss absorbers have incentives to close or recapitalize the bank before losses can grow large enough to reach the depositors.

Both plans make similar demands on banks and government regulators. Banks have to offer sufficient transparency and deterrency to persuade investors to put enough capital into these plans to provide the protection depositors need. To make sure this happens, government regulators have to set, monitor and enforce requirements on sureties and subordinated debtholders. They must also avoid bailing out troubled banks and the designated loss absorbers.

The central difference between the two plans is that a debtholder invests in the bank at the outset, while a surety does not have to pay out money unless and until an insured bank fails. However, because a surety must accumulate enough assets to keep its promises credible, the difference between the two approaches lies more in the concentration of monitoring responsibilities and supporting investments in a single entity.

Promising subordinated-debt plans have been put forward by Wall (1988) and Calomiris (1997). Both plans envision that banks be formally required to meet a government-set minimum ratio of subordinated debt to either total or risk-weighted assets.

Wall's plan would allow subordinated debtholders to request redemption of their debt at any time, but be forced to wait 90 days for reimbursement. To fend off closure, the bank would have to use this 90-day window to replace the debt being redeemed or to raise new funds from stockholders sufficient to pay the debt off. Banks choosing the second option would receive

another 90 days of grace in which to meet the government-imposed subordinated-debt requirement.

Calomiris focuses his plan on making sure that the subordinated debtholders will remain a reliable source of discipline when and as a country's banking system weakens. His proposal follows Benston et al. (1986) in requiring a "laddering" of maturities to assure frequent market testing of each bank's risk exposures. He would also make subordinated debt nontradable and limit ownership to a group of pre-approved holders that a country's government would certify to be both sufficiently well-capitalized and independent of the issuing bank. Looming large on the roster of eligible debtholders would be global banks. Introducing a "prequalifying" process makes the subordinated-debt proposal very closely resemble the surety arrangement. The differentiating feature lies in linking government supervisory discipline to the observable yield at which the debt is issued. Calomiris recommends that authorities deny banks the right to roll over subordinated debt at a yield that would exceed an appropriately country-specific maximum allowable yield spread (say, 5%) over Treasury instruments of comparable maturity. To meet their subordinated-debt requirement, banks from whom higher yields are being demanded would have to cut back their risk.

VII. Crisis Management

When a safety net fails in a circus, managers face a multidimensional disaster: at least one dead or badly broken acrobat, a shocked and grieving staff, a panicked crowd of traumatized spectators, and a mess that needs to be contained and cleaned up before it can escalate into a catastrophe. Unless staffmembers have been carefully drilled in efficient techniques for containing and cleaning up such a crisis, they are unlikely to prioritize and coordinate their activities in the best interests of the circus or the audience.

When a country's financial safety net actually breaks down or threatens to break down, equally pressing problems of priority and coordination arise. The first line of crisis management is an unstinting program of preventive inspection, testing, and prompt repair. In bank supervision, as in so many other areas of human endeavor, an ounce of protection is worth a proverbial pound of cure. As we have emphasized, a program of breakdown prevention has two parts. It begins with policies that extract reliable information on a bank's risk exposures and on the ability of its stockholders and uninsured creditors to cover these exposures. It concludes with protocols for regulatory response that commit policymakers to employ the information collected

to make sure that capital shortages and excessive risk exposures at individual banks are corrected promptly and equitably.

It must be recognized that banks have strong incentives to circumvent the prevention system. Whenever a country's prevention program fails to contain this circumvention, a number of banks go splat. Crisis management means resolving the insolvency of damaged banks. Insolvency resolution determines who loses what when the net worth of many banks is wiped out at the same time. For authorities to work through a banking disaster efficiently, they must establish a set of reasonable policy priorities in advance and commit themselves to pursuing these priorities in the event. The first priorities are rescue and triage. Dead and injured institutions must be sorted out immediately and cared for appropriately. The second priority is crowd control. Evidence that triage is being handled efficiently should help to curtail panicky audience runs, but specific staffmembers must take up the task of helping those who want to take deposits out of their banks to do so in a reasoned and orderly manner. The third priority is to clean up the mess so that the show may resume without an undue delay.

Rescue and Triage

Rather than extend the circus metaphor, it is better to compare the job of managing a systemic banking crisis to the task of coping with the sudden collapse of a tall building that produces an overwhelming number of dead and injured parties. In a systemic banking crisis, the casualties are the stockholders, employees, depositors, and nondeposit creditors of a nation's banks. Authorities cannot be expected to find and treat individual casualties efficiently unless that have formulated an integrated disaster plan and drilled appropriate personnel in its execution. The trick is to prepare regulatory staffs to react immediately to the first signs of crisis without having to wait for specific directions from above.

Bank examiners must have access to the data and expertise to size the depth of emerging insolvencies promptly. Supervisory personnel must be divided into teams that are trained to determine for every individual institution that suffers an insolvency-revealing run the degree of help that the institution's various stakeholders would require to make them whole. Without this information, higher officials cannot evaluate the reasonableness of asking taxpayers to supply that help.

Supervisors must be conditioned to regard as moribund stockholders' position in any bank that is too far gone to have any prospects of repaying a taxpayer loan. It is easy to see that it makes no sense in the midst of an emergency to divert limited surgical resources to sewing up

the wounds or resetting the broken bones of a moribund individual. Similarly, officials must be trained to recognize that in dealing with hopelessly insolvent institutions it makes no sense to open the public purse to preserve the positions of stockholders and subordinated creditors or to keep paying top managers lofty salaries.

Insured depositors should be granted access to their funds as soon as it is administratively possible and uninsured depositors should be accorded a fair degree of immediate fractional access to their funds. Procedures for setting the transactable fraction of different deposit accounts should be founded in conservative valuation techniques whose application is carefully rehearsed in advance. Examiners should be trained to estimate the minimum percentage of uninsured deposits that could be recovered in an orderly liquidation of the bank's tangible portfolio. The rest of each depositor's balance should be set aside and unfrozen in stages as the depth and intangible elements of each bank's insolvency can be more accurately sized. How fully the positions of other uninsured creditors should be marked down (or "haircut") depends on the depth of – and margin for error in—the loss assessments that the examination team is able to assemble.

Just as in a building collapse, urgent decisions must be made quickly. However, this means that authorities must decide ahead of time what decisions, though necessary, are best postponed to a more convenient time. In any medical disaster, making decisions about the urgency of treating different patients is called triage. Triage begins with assessing the extent of each casualty's particular needs. The first objective of this assessment is to determine which parties are and are not beyond help. The second objective is to set priorities for treating those that can benefit from specific kinds of assistance. At each moment, available medical resources must be allocated to the particular tasks that promise to do the most good. This means rushing into surgery those whose wounds and injuries either are at a life-or-death stage or are apt to worsen greatly with delay. Nonsurgical (i.e., less scarce) personnel should be assigned the task of comforting moribund patients and to helping noncritical patients to keep their spirits up while they wait for treatment.

It is important to understand that, in the midst of an emergency, such decisions cannot wait for formal ratification by less-informed higher-ups. Although staff judgments must be reviewed and criticized later, during an emergency the autonomy of examination teams must be respected and supported at all levels of the bureaucracy. The difficulty of switching from a hierarchical structure of cover-your-ass decision-making to a decentralized task-oriented and

cooperative structure of immediate response helps to explain why government officials must not presume that they can work out efficient schemes of disaster management on the fly.

Crowd Control

Using the words "panic" and "depositor runs" to describe the onset of financial crises tends to build a subliminal case for authorities to mount a rescue without stopping to establish priorities. However, one can learn a great deal about how to manage a panicky depositor run by analyzing rigorously the metaphors embodied in these emotive words.

The first lesson is to distinguish efforts to treat a fast-burning panic from the methods that would be appropriate for addressing the longer-lasting phenomena of a financial crisis. The word "panic" is rooted in classical mythology. Panic comes from the name of the Greek god Pan. Pan combined a human torso with a goat's legs, horns, and ears. Because of his ugliness, Pan was said to strike sudden and profound terror into the hearts of shepherds and other wanderers unlucky enough to cross his path.

The triggering ugliness in a bank panic is the murky surfacing of adverse information that destroys customer confidence in the repayment capacity of a group of banks. This loss of confidence may be based either on general information about the consequences of unfolding economic events or information specific to individual banks or to the particular assets they are known to hold.

The essence of a banking panic is twofold. First, in a panic, runs are widespread enough that affected banks cannot raise funds quickly by selling portfolio assets to other parties at fair prices. Second, institutions not experiencing runs are reluctant to lend enough funds to affected banks to allow them to maintain the convertibility of their deposits into cash.

For authorities, a systemic panic creates an urgent need to deal with a wave of spreading bank illiquidity and financial dislocation. However, the urgency of stopping a panic must not be allowed to over-ride the need to identify hopelessly insolvent zombie institutions and begin the process of winding up their affairs. Issuing blanket government loans and guarantees to all troubled banks implicitly shifts the burden of absorbing the losses imbedded in the portfolios of zombie institutions to taxpayers and relieves managers, stockholders, and creditors from bearing due responsibility for the loss-making decisions they had previously ratified contractually.

To end a panic efficiently, liquidity must be offered only to potentially solvent institutions and control over zombie institutions must be put into new hands. This means that authorities must stop to take the measure of a financial institution's wounds before greatly

expanding its access to liquid funds. It should be understood that, during any insolvency-assessment timeout, would-be transactors have strong incentives to use standard and innovative forms of credit to prevent transactions from grinding to a halt. Credit cards and checks can be accepted, along perhaps with other documents, as evidence of personal indebtedness whose collectable value may be supplemented from other sources if the issuing bank falls into liquidation.

Periods in which the government temporarily dictates that banks shut their door and suspend the convertibility of their deposits are called, with more than a little irony, "banking holidays." The irony lies in the unwelcomeness of the interruption in routine and in how hard banking and regulatory personnel have to work to bring the holiday to a successful end.

Although the runs metaphor is too vivid to discuss in full, visualizing a panicked banking system as suffering from the runs underscores the same dilemma. The dilemma flows from the idea that the suffering party has inhaled or swallowed some potentially contagious antigen and is undergoing a lagged but rapid elimination of unhealthful material. In a crisis, the antigen is a loss of wealth that must work itself out through the liability side of the balance sheets of troubled banks. In designing a treatment plan, it would be a mistake to let the speed of elimination become the sole consideration. At each moment, the long-run cost of interfering with the transfer of bank losses to those contractually responsible for financing them must be weighed against the benefits of bringing the panic to a quicker end.

Three alternative metaphors for understanding and dealing with an unfolding banking panic can help us to explore the workout process:

1. a meltdown of financial value
2. a stampede
3. epidemic control.

1. Meltdown: The meltdown metaphor conveys the idea of a sudden annihilation of bank portfolio value. This metaphor accommodates the idea that the sudden emergence of adverse information about borrower prospects or previously hidden bank frauds or losses might seem to vaporize what once looked like solid asset value. If the information guiding the metaphorical "value heat ray" is accurate, the ray ought to make slag only out of banks and assets that are truly "junk." A well-aimed ray can clear the road for future economic growth by seeking out and vaporizing society's garbage. As did the stampede metaphor, the meltdown conception identifies

the top public-policy priorities in crisis management as limiting the meltdown to junk and limiting industry exits and takeovers to institutions that truly warrant failure.

2. Stampede: Bank customers who are running a bank are trying to mitigate their individual exposure to loss. In this respect, they resemble a herd of animals that has been stampeded by the appearance of a pack of predators. In the animal kingdom, such stampedes (e.g., of moose responding to the appearance of hungry wolves) help to cull the herd by letting the quick and the nimble escape and offering up the slow and the lame for the predator's dinner. Hence, the stampede metaphor introduces the important entailment that a bank run is a mechanism that identifies and eliminates weak and infirm banks: a winnowing process that exemplifies the Schumpeterian ideal of "creative destruction." The deadweight social cost of the winnowing process is the damage customer credit relationships suffer at institutions whose affairs are reorganized or liquidated.

Allowing ownership claims on insolvent banks to expire when they become valueless is necessary for banking markets to function appropriately. Schumpeterian economic theory emphasizes the practical wisdom –a wisdom that is celebrated in hunting and warrior cultures— that life springs from death. Joseph Campbell (1972, pp. 176-178) clarifies that, in simpler times than ours, myths and ceremonies taught generation after generation of their members that to activate life one kills. The root idea is that life and value do not come into the world, they come "out" of it. Dead things are transformed biologically into nutrients (and economically into object lessons), which means that nothing and nobody dies in vain.

A depositor run creates incentives that reward customers and other financial firms for helping to gather information that analysts can use to judge which banks are and are not strong enough to deserve an inflow of liquidity-enhancing loans and deposits. Institutions and individuals who make well-reasoned loan and deposit decisions will earn attractive returns; those who make bad decisions should not be bailed out by blanket guarantees.

3. Epidemic Control: The possibility that customer fear and confusion might result in unwarranted value destruction brings us to the public-policy metaphor of "contagion control." Contagion occurs when an infection is transmitted from a diseased individual to a previously uninfected party (Schwartz, 1999). It differs radically from circumstances in which two parties have ingested a common poison (i.e., bad loans).

Any epidemic spread of confusion per se can and should be countered by micro and macro policies. Macro control may be effected by avoiding contractionary monetary policies

and by making government loans and guarantees available to certifiably healthy banks. Macro policies may be likened to raising shields to blunt the destructive power of a heat ray, eliminating predators, or using vaccination programs to block the spread of germs.

All three metaphors sound the theme that policy action should reinforce triage activity and not counteract it. Micro policy measures should enlist nongovernmental parties in the tasks of identifying likely survivors and of focusing liquidity assistance on them. The planning and design question is to make sure that, in judging which banks and assets deserve to be shielded from spreading harm, authorities establish ways to make use of the analytic capacities of nongovernmental entities, customers, local clearinghouses, and foreign banks.

Keeping the Exits Open

The idea that regulators should keep some exits open for depositors is a metaphor for creating a supervisory environment that minimizes the impact of bank crises on the nation's aggregate money supply. The most straightforward way to preserve the liquidity of bank depositors is to assure insured and uninsured customers that arrangements are being made to let them directly or indirectly borrow central-bank funds against the collateral of their recoverable net claim on each insolvent bank. Preparing examiners to calculate promptly the value at which bank assets could be liquidated in an orderly manner is the key step in assuring that access to depositor funds will be restored reasonably promptly.

Once examiners have made these quick-and-dirty calculations, depositors can be granted fractional access to the funds in their accounts. At the same time, the government should establish a formal claim on the equity of each insolvent bank either by completely extinguishing the rights of former shareholders or by taking a warrant position large enough to compensate taxpayers for the administrative and risk-bearing costs of overseeing the bank's recapitalization. In either case, the aim would be to sell the government's equity claim to private parties as soon as fully reliable information on asset values can be developed.

Banking regulators are unlikely to engage in disaster planning unless they acknowledge that neither systemic banking crises nor banking holidays are unthinkable events. Banking crises are part of a repeating cycle of bank lending to parties whose ability to repay cannot be fully assessed in advance. A banking panic typically occurs when previously hidden weaknesses in borrowers' repayment capacity surface suddenly. The depth of borrower weakness tells us that large losses need to be allocated across those who hold the liabilities that now-troubled banks

issued in the process of funding what, with the benefit of hindsight, everyone now sees to have been loss-making activities.

It is unreasonable to expect risky bank lending to generate an endless string of success stories. It is equally unreasonable to suppose that having no alternative to keeping stakeholders in deeply insolvent banks from paying for their mistakes is a desirable public policy. The fundamental question in a crisis is what parts of society should wield the hammer and what parts should be made to act as anvil.

Banks that inefficiently manage their resources destroy their ownership capital. This loss of capital should unleash market forces that serve to transfer the valuable parts of such a bank's franchise into better capitalized and potentially more skillful hands. In our softhearted modern times, industry spin doctors try to convince taxpayers that closing an insolvent bank or assigning its business to a new owner is a barbarously cruel thing to do. Unless creditors and investors expect inefficient managers and undercapitalized firms to be promptly and appropriately disciplined, the incentives that govern the evaluation and selection of risky investment projects will break down. This is why society must find ways to reward banking regulators for formulating and enforcing meaningful capital requirements and must pound regulators that dare to keep zombie banks in play.

Regulators who choose not to develop a plan for allocating losses in a disaster must be held accountable for inefficiencies that emerge in their inevitably hasty and ad hoc response to crisis pressures. During the last 60 years, shortsighted regulators have prototypically acted first and thought about it later. By and large, they have justified the costs of this ad hockery by framing crisis situations as so unique and so dire that indiscriminate use of government guarantees and bailout support serve the public interest not only in the short run, and also over the longer haul. It is hard to understand why taxpayers accept the lack of accountability for the projectable future budgetary costs and long-run incentive distortion that this characterization conveys.

Crises are not unique events, nor are they isolated in time from the events that precede and follow them. On average, the faster and more fairly an insolvent banking system's losses can be allocated, the quicker socially desirable patterns of bank lending can resume. The more efficiently and more fairly the process of loss resolution can be conducted, the smaller the bill in economic resources and social demoralization that taxpayers will have to pay to make the banking system whole again.

VIII. Summary

Banks are in the business of taking risk. These risks originate in the real economy. By intermediating the flow of real savings and real investment, banks evaluate and monitor the quality of individual borrowers. They also provide customers with ways to avoid some or all of the ultimate responsibility for bearing the risks the banks approve.

Accumulating stockholder equity is a way for individual banks to bond the quality of their monitoring and evaluating activity, but it is not the only way. In particular, because governments have an interest both in the efficient allocation of national savings and in limiting the damage bank risk-taking may visit on other parties, governments inevitably supply taxpayer risk capital to their banking system by erecting and managing a financial safety net.

We take it as a rule of thumb that safety-net managers should avoid either subsidizing or taxing bank risk-taking. Economic research has never established that taxing or subsidizing private risk-taking is an optimal way to run a nation's economy. Even if analysts could formulate a beneficial tax or subsidy rule, it is unlikely that channeling the effect through a government-run deposit insurance system that fails to account publicly for the size of taxpayers' stake could improve upon more straightforward arrangements.

A country's safety net is unlikely to be optimal unless it establishes or maintains transparency, deterrency, and accountability. This paper shows that large differences exist across countries in the transparency and deterrency that banks afford their depositors. It also shows why safety-net design needs to take these differences into account.

The weaker is a country's informational, ethical, and corporate-governance environment, the more a wholly governmental system of explicit deposit guarantees is apt to undermine bank safety and stability. Put positively, the design features and operating protocols of a country's safety net ought to evolve over time with changes in private and government regulators' capacity for valuing banking institutions, for disciplining risk-taking and resolving insolvencies promptly, and (above all) for being held accountable for how well they perform these tasks.

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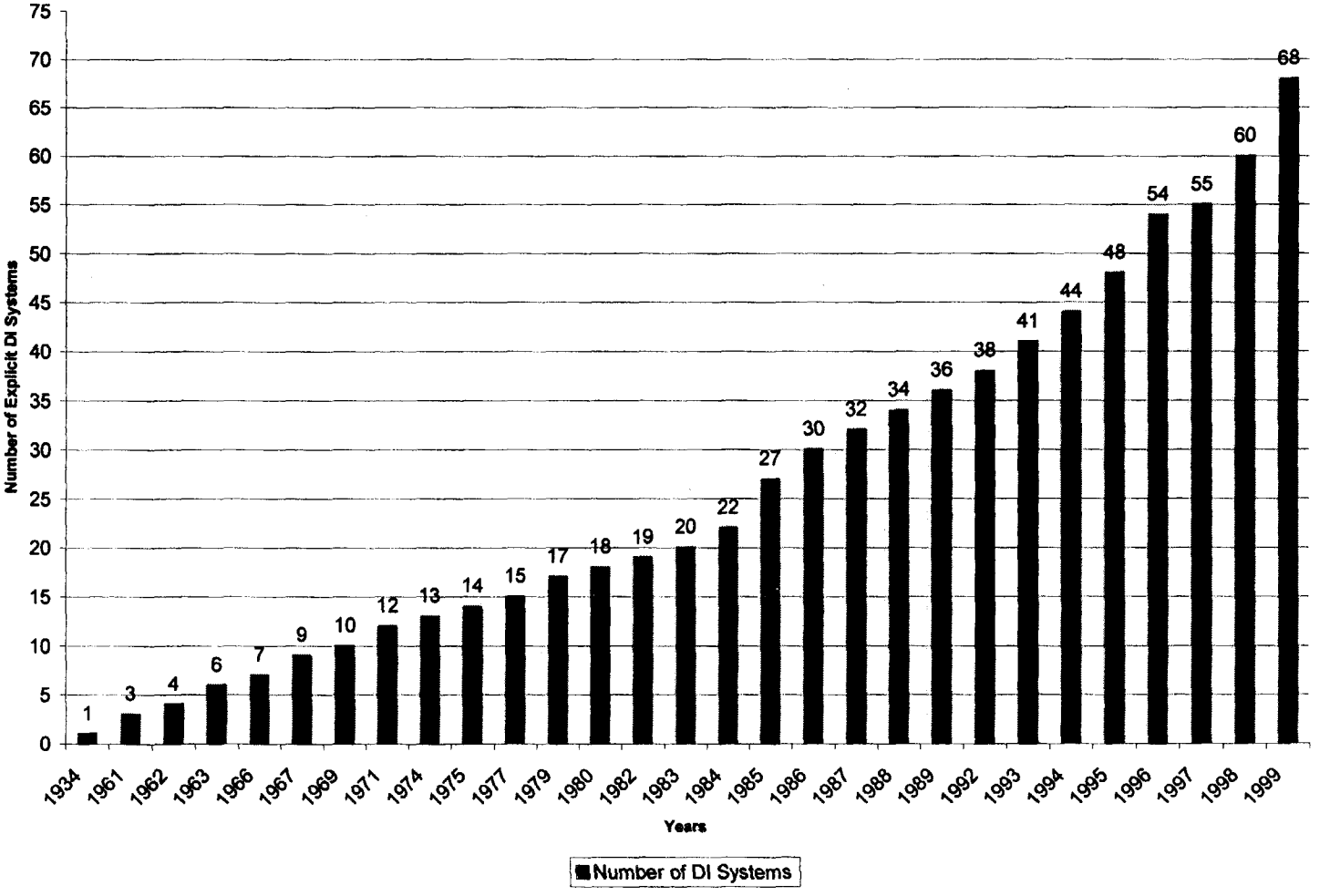
FIGURE 1
BEST PRACTICES FOR SAFETY-NET DESIGN ENVISIONED BY IMF RESEARCHERS

- All Countries Should Establish Explicit Deposit Insurance
- The Insurance System Should Incorporate at Least the Following Design Features:
  - Prudential regulation
  - Limitations on coverage
  - Mandatory membership
  - Political "independence" for regulatory officials.

FIGURE 2

CROSS-COUNTRY TREND IN THE ADOPTION OF EXPLICIT DEPOSIT INSURANCE



Note: Countries that have adopted deposit insurance that are not in the sample we analyzed are: Bahrain, Bolivia, Bulgaria, Cameroon, Central African Rep., Chad, Congo, Croatia, Czech Rep., Dominican Republic, Ecuador, El Salvador, Equatorial Guinea, Estonia, Gabon, Gibraltar, Hungary, Latvia, Lebanon, Lithuania, Macedonia, Marshall Islands, Micronesia, Poland, Romania, Slovak Republic, Tanzania, Uganda, Ukraine

TABLE 1
MEASURES OF CROSS-COUNTRY VARIATION IN THE QUALITY OF ECONOMIC INFORMATION

	Accounting Standards	Corruption Index	Index of Restrictions on Press
High Income			
Australia	75	5.11	8.8
Austria	54	5.14	14.6
Belgium	61	5.29	8.8
Canada	74	6.00	15.2
Cyprus		2.60	21.2
Denmark	62	6.00	9.4
Finland	77	6.00	15.4
France	69	5.43	25.6
Germany	62	5.36	14.4
Greece	55	4.36	28.4
Hong Kong	69	5.11	32.75
Iceland		3.60	12.4
Ireland		5.11	17.8
Israel	64	5.00	29.2
Italy	62	3.68	27.8
Japan	65	5.11	20.2
Korea	62	3.18	26.4
Luxembourg		3.60	10.4
Netherlands	64	6.00	14.8
New Zealand	70	6.00	6.8
Norway	74	6.00	6.6
Portugal	36	4.43	17
Singapore	78	4.93	63.6
Spain	64	4.43	18
Sweden	83	6.00	10.2
Switzerland	68	6.00	9.2
Taiwan	65	4.11	28.4
United Kingdom	78	5.46	22.2
United States	71	5.18	12.8
Middle-Upper Income			
Argentina	45	3.61	31.2
Brazil	54	3.79	29.8
Chile	52	3.18	29
Malaysia	76	4.43	61
Mexico	60	2.86	54.4
(continued)			
South Africa	70	5.35	30.6
Trinidad & Tobago		1.80	27.6
Uruguay	31	3.00	38.6
Venezuela	40	2.82	35
Middle Lower			
Bolivia		1.35	18.4
Botswana		2.30	27.4
China		2.55	83.8
Colombia	50	3.00	52.2
Costa Rica		3.00	17.4
Ecuador		3.11	36.4
Egypt	24	2.32	75
Indonesia		1.29	71.4
Jamaica		1.40	14.8
Jordan		3.29	50.6
Morocco		1.80	52.4
Namibia		2.60	27.2
Panama		1.20	27.8
Peru	38	2.82	58
Philippines	65	1.75	44.6
Sri Lanka		3.00	46.8
Thailand	64	3.11	39.8
Tunisia		1.80	67.4
Turkey	51	3.11	68
Low Income			
Bangladesh		0.85	52.8
Cote d'Ivoire		2.30	69.2
Ghana		1.95	61.2
Honduras		1.20	45.6
India	57	2.75	42.4
Kenya		2.89	59.2
Nigeria	59	1.82	80.8
Pakistan		1.79	57.8
Zimbabwe		3.25	56.2

Accounting Standards: Index created by examining and rating companies' 1990 annual reports on their inclusion or omission of 90 items. These items fall into 7 categories (general information, income statements, balance sheets, funds flow statement, accounting standards, stock data and special items). A minimum of 3 companies in each country were studied. The companies represent a cross-section of various industry groups of which 70% are industrial companies and 30% are financial firms. Higher scores indicate better accounting standards. (Source: *International Accounting and Auditing Trends, Center for International Financial Analysis & Research, Inc.*)

Corruption: ICR's assessment of corruption in government. Lower scores indicate "high government officials are likely to demand special payments" and "illegal payments are generally expected throughout the lower levels of government" in the form of "bribes connected with import and export licenses, exchange controls, tax, assessment, policy protection, or loans". Scale runs from 0 to 6, with lower scores indicating higher levels of corruption. (Source: *International Country Risk Guide*)

Restrictions on Press: Assessment of repressive actions and laws, regulations, controls, and political pressures that influence media content. Score reported is the average index assigned by Freedom House staff in Annual Press Freedom Reports, 1994-1998. Scale runs from 0 to 100, with lower scores indicating greater freedom.

TABLE 2
TIME SERIES OF CROSS-COUNTRY VARIATION IN BANKING-SYSTEM CREDIT-RATING PROXIES*

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Argentina							14.0	14.0	14.0	14.0	14.0
Australia			3.0	4.1	4.8	4.8	4.8	4.4	4.6	4.2	4.2
Austria							4.0	2.5	2.9	2.9	4.0
Bahrain										12.0	12.0
Bahrain – Offshore											10.0
Belgium						2.0	3.0	2.9	3.4	3.4	4.0
Bermuda											6.4
Brazil								15.0	15.0	15.0	15.0
Canada		3.1	3.1	3.3	3.8	3.7	3.7	3.7	3.7	3.7	3.7
Chile								9.0	8.5	8.4	8.0
China							7.0	7.0	9.0	8.7	8.8
Colombia									11.0	11.0	11.0
Croatia											11.0
Cyprus										6.0	6.0
Czech Republic										9.1	9.0
Denmark			2.0	3.0	3.4	4.2	5.0	4.6	4.6	4.6	4.7
Ecuador											15.0
Egypt											12.0
Estonia											9.4
Finland		3.0	3.0	3.0	3.0	6.0	6.0	6.0	6.0	6.0	6.0
France		1.5	1.7	1.9	2.2	3.0	3.7	4.9	4.8	4.7	4.4
Germany		1.0	1.0	1.0	1.2	1.2	1.6	1.8	1.8	2.1	2.3
Greece									10.0	10.0	8.1
Hong Kong								7.0	7.0	7.2	6.5
Hungary										12.0	11.5
Iceland											7.0
India									11.0	11.0	
Indonesia										11.3	13.0
Ireland				5.0	6.0	5.5	5.5	5.1	5.1	5.1	4.7
Israel										7.0	7.0
Italy			2.0	1.9	2.6	4.2	5.5	5.7	6.0	5.9	5.6
Japan		1.7	1.7	2.9	3,7	3.7	6.0	6.0	6.0	6.0	5.8
Jordan											14.0
Kazakhstan											15.0
Korea						7.0	7.0	6.8	7.5	7.2	13.7
Kuwait										8.0	8.0
Lebanon											15.0

TABLE 2 continued

Liechtenstein											4.0	4.0
Luxembourg										4.0	4.0	4.0
Malaysia										5.0	5.3	8.9
Malta												6.0
Mauritius												9.0
Mexico							12.0	12.0	14.0	14.0	13.0	
Netherlands					3.0	3.0	3.0	2.4	2.5	2.6	2.5	
Norway		4.0	4.0	5.0	6.4	7.0	7.0	7.0	6.0	6.1	6.1	
Oman											10.0	10.0
Pakistan											16.0	
Panama												12.0
Peru												16.0
Philippines								13.0	12.6	12.7	12.2	
Poland									12.1	11.8	11.7	
Portugal						6.0	6.0	6.7	6.7	6.7	6.9	
Qatar										9.0	9.0	
Romania												14.0
Russia												13.0
Saudi Arabia											10.0	10.0
Singapore										3.4	3.5	3.5
Slovakia											11.0	11.0
Slovenia												10.0
South Africa											11.0	11.0
Spain				3.5	3.5	4.0	4.2	4.4	4.3	4.3	4.3	
Sweden		1.0	1.0	1.0	2.5	4.0	5.5	5.5	5.5	5.5	4.9	
Switzerland				1.0	1.0	2.0	2.7	2.7	2.6	3.1	3.2	
Taiwan									4.0	5.2	5.9	
Thailand								6.0	6.8	7.1	13.8	
Tunisia										11.0	11.0	
Turkey							10.0	14.0	14.0	14.0	15.0	
United Arab Emirates										8.6	8.6	
United Kingdom		2.0	2.2	2.8	3.5	3.6	3.6	3.5	3.4	3.5	3.3	
United States	6.0	4.7	4.0	4.9	5.2	5.2	4.8	4.6	4.5	4.3	3.9	

0. All ratings are assigned in the year shown. Except for the U.S., proxy values are weighted averages (using asset weights) of Moody's Long-Term Deposit Ratings of Non-US banks operating in a country. Banks with no LT-Deposit Ratings, and relatively smaller banks are not included in the sample; this is why the averages are labelled as "proxies". Ratings were assigned the numerical values shown in the following table:

Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21

TABLE 3
PERCENTAGE OF BANK ASSETS RATED IN INDIVIDUAL COUNTRIES, 1987 to 1997

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Argentina							12.4	15.0	59.9	63.5	44.4
Australia*				86.3	79.4	78.9	74.7	76.6	82.1	83.6	87.1
Austria							16.5	33.1	32.8	33.9	22.2
Bahrain										67.0	64.9
Belgium						15.3	48.9	50.0	56.6	60.3	44.0
Bermuda											
Brazil								5.4	82.7	80.9	91.5
Canada*				74.6	90.5	92.1	90.4	91.0	90.8	94.5	95.4
Chile*								30.3	60.8	62.4	64.2
China							25.4	80.4	78.2	71.4	65.4
Colombia									10.8	54.9	49.7
Croatia											26.6
Cyprus										83.1	85.6
Czech Republic										68.7	60.0
Denmark				44.2	72.2	67.4	69.9	68.7	75.5	79.9	96.7
Ecuador											38.6
Egypt, Arab Rep.											35.3
Estonia											48.5
Finland				9.5	9.3	10.2	12.7	12.3	62.3	61.4	67.7
France				56.9	59.0	64.8	67.2	65.2	67.2	70.8	70.6
Germany				18.3	23.4	24.2	30.6	31.0	33.5	36.5	40.3
Greece*									90.6	90.4	89.4
Hong Kong, China								16.9	26.8	33.2	34.0
Hungary											
Iceland											28.3
India									50.3	61.0	
Indonesia										65.4	20.0
Ireland*				95.5	94.3	86.1	86.9	74.2	62.1	63.7	73.3
Israel*										92.4	93.8
Italy				28.9	27.7	27.7	36.4	67.3	68.2	74.1	71.4
Japan		13.0	14.0	79.7	80.5	77.9	84.2	85.6	86.3	87.0	84.7
Jordan											16.8
Kazakhstan											22.7
Korea, Rep.*						13.4	9.6	34.0	60.8	86.9	89.1
Kuwait										93.7	92.3
Lebanon											22.1
Liechtenstein											
Luxembourg									5.9	12.1	12.5

TABLE 3 continued												
Malaysia									33.4	41.4	43.3
Malta											50.9
Mauritius											59.9
Mexico									9.6	13.2	89.2
Morocco										n.a.	n.a.
Netherlands					20.2	20.9	20.0	30.2	32.2	35.3	34.3
Norway				50.5	48.5	45.0	42.4	40.5	40.6	46.5	48.2
Oman										66.5	46.2
Pakistan										76.0	
Panama											5.0
Peru											69.0
Philippines								15.5	73.8	64.9	57.3
Poland									16.9	26.0	22.1
Portugal						14.4	25.5	34.6	49.1	67.7	51.0
Qatar										71.8	70.7
Romania											40.1
Russian Federation*											23.7
Saudi Arabia										63.2	56.2
Singapore									90.5	97.2	93.7
Slovak Republic										66.9	47.2
Slovenia											55.0
South Africa										93.1	86.5
Spain				17.2	19.3	25.4	59.2	58.9	63.3	67.3	74.4
Sweden				60.1	61.6	62.9	63.9	62.0	72.2	75.9	81.6
Switzerland				44.1	45.6	45.7	58.0	55.7	65.5	78.2	90.6
Taiwan, China									9.5	30.0	20.1
Thailand								25.1	59.6	71.1	65.4
Tunisia										62.5	6.5
Turkey							25.0	25.9	43.4	86.1	38.2
United Arab Emirates										41.3	42.9
United Kingdom				21.5	23.5	37.4	42.5	41.5	41.6	45.9	46.1
United States	0.1	0.8	3.8	32.8	33.0	38.1	43.7	51.7	53.5	57.8	55.9

Percentage of bank assets rated: The ratio of the total assets of rated banks to a proxy measure of the banking systems' assets.

Notes: The numerator is the sum of the total assets of the banks having long-term deposit credit ratings by Moody's credit rating agency. The data source for the numerator is the Bankscope database. A small portion of the rated banks, for which no asset size data are available, is excluded from the numerator.
The denominator is a proxy for the banking system's assets, and is calculated by adding the 20th, 21st, and 22nd, lines of the International Monetary Fund's International Financial Statistics (except for the countries with an "*"). Major aggregates of the accounts on the assets side are *Reserves* (line 20), comprising domestic currency holdings with the monetary authorities, *Foreign Assets* (line 21), and *Claims on Other Resident Sectors* (lines 22*). The denominator does not cover all the assets of the banks and therefore the measure is downward biased. The denominators of the countries marked with an "*" are calculated with BankScope data because using the IMF figures would produce a figure in excess of 100 percent.

TABLE 4
MEASURES OF CROSS-COUNTRY VARIATION IN CORPORATE GOVERNANCE

	English	French	German	Scandinavian	One share - one vote	Proxy by mail	Shares not blocked before meeting	Cumulative voting or proportional representation	Oppressed minorities mechanism	Preemptive rights	% of share capital to call an extraordinary meeting	Anti-director rights	Mandatory dividend	Restrictions for going into reorganization	No automatic stay on secured assets	Secured creditors first	Management does not stay	Creditor rights	Legal reserve
	Legal Origin																		
High Income																			
Australia	1	0	0	0	0	1	1	0	1	0	0.05	4	0	0	0	1	0	1	0
Austria	0	0	1	0	0	0	0	0	0	1	0.05	2	0	1	1	1	0	3	0.1
Belgium	0	1	0	0	0	0	0	0	0	0	0.2	0	0	0	1	1	0	2	0.1
Canada	1	0	0	0	0	1	1	1	1	0	0.05	5	0	0	0	1	0	1	0
Cyprus	1	0	0	0															
Denmark	0	0	0	1	0	0	1	0	0	0	0.1	2	0	1	1	1	0	3	0.25
Finland	0	0	0	1	0	0	1	0	0	1	0.1	3	0	0	0	1	0	1	0
France	0	1	0	0	0	1	0	0	0	1	0.1	3	0	0	0	0	0	0	0.1
Germany	0	0	1	0	0	0	0	0	0	0	0.05	1	0	1	1	1	0	3	0.1
Greece	0	1	0	0	1	0	0	0	0	1	0.05	2	0.35	0	0	0	1	1	0.33
Hong Kong					0	1	1	0	1	1	0.1	5	0	1	1	1	1	4	0
Iceland	0	0	0	1															
Ireland	1	0	0	0	0	0	1	0	1	1	0.1	4	0	0	0	1	0	1	0
Israel	1	0	0	0	0	0	1	0	1	0	0.1	3	0	1	1	1	1	4	0
Italy	0	1	0	0	0	0	0	0	0	1	0.2	1	0	1	0	1	0	2	0.2
Japan	0	0	1	0	1	0	1	1	1	0	0.03	4	0	0	0	1	1	2	0.25
Korea	0	0	1	0	1	0	0	0	1	0	0.05	2	0	0	1	1	1	3	0.5
Luxembourg																			
Netherlands	0	1	0	0	0	0	0	0	0	1	0.1	2	0	1	0	1	0	2	0
New Zealand	1	0	0	0	0	1	1	0	1	0	0.05	4	0	1	1	0	1	3	0
Norway	0	0	0	1	0	1	1	0	0	1	0.1	4	0	1	0	1	0	2	0.2
Portugal	0	1	0	0	0	0	1	0	0	1	0.05	3	0	0	0	1	0	1	0.2
Singapore	1	0	0	0	1	0	1	0	1	1	0.1	4	0	1	1	1	1	4	0
Spain	0	1	0	0	0	0	0	1	1	1	0.05	4	0	0	1	1	0	2	0.2
Sweden	0	0	0	1	0	0	1	0	0	1	0.1	3	0	1	0	1	0	2	0.2
Switzerland	0	0	1	0	0	0	0	0	0	1	0.1	2	0	0	0	1	0	1	0.5
Taiwan	0	0	1	0	0	0	0	1	1	0	0.03	3	0	0	1	1	0	2	1
United Kingdom	1	0	0	0	0	1	1	0	1	1	0.1	5	0	1	1	1	1	4	0
United States	1	0	0	0	0	1	1	1	1	0	0.1	5	0	0	0	1	0	1	0
Middle-upper Income																			
Argentina	0	1	0	0	0	0	0	1	1	1	0.05	4	0	0	0	1	0	1	0.2
Barbados	1	0	0	0															
Brazil	0	1	0	0	1	0	1	0	1	0	0.05	3	0.5	1	0	0	0	1	0.2
Chile	0	1	0	0	1	0	1	1	1	1	0.01	5	0.3	1	0	1	0	2	0.2
Malaysia	1	0	0	0	1	0	1	0	1	1	0.1	4	0	1	1	1	1	4	0
Mauritius	0	1	0	0															
Mexico	0	1	0	0	0	0	0	0	0	1	0.33	1	0	0	0	0	0	0	0.2
Oman																			

TABLE 4 continued

	English	French	German	Scandinavian	One share – one vote	Proxy by mail	Shares not blocked before meeting	Cumulative voting or proportional representation	Oppressed minorities mechanism	Preemptive rights	% of share capital to call an extraordinary meeting	Anti-director rights	Mandatory dividend	Restrictions for going into reorganization	No automatic stay on secured assets	Secured creditors first	Management does not stay	Creditor rights	Legal reserve
	Legal Origin																		
Saudi Arabia																			
South Africa	1	0	0	0	0	1	1	0	1	1	0.05	5	0	1	0	1	1	3	0
Trinidad & Tobago	1	0	0	0															
Uruguay	0	1	0	0	1	0	0	0	1	1	0.2	2	0.2	0	0	1	1	2	0.2
Venezuela	0	1	0	0	0	0	1	0	0	0	0.2	1	0			1			0.1
Middle Lower																			
Bolivia	0	1	0	0															
Botswana																			
China																			
Colombia	0	1	0	0	0	0	1	1	0	1	0.25	3	0.5	0	0	0	0	0	0.5
Costa Rica	0	1	0	0															
Ecuador	0	1	0	0	0	0	1	0	0	1	0.25	2	0.5	1	1	1	1	4	0.5
Egypt	0	1	0	0	0	0	1	0	0	0	0.1	2	0	1	1	1	1	4	0.5
Indonesia	0	1	0	0	0	0	1	0	0	0	0.1	2	0	1	1	1	1	4	0
Iran	0	1	0	0															
Jamaica	1	0	0	0															
Jordan	0	1	0	0	1	0	1	0	0	0	0.25	1	0						0.25
Morocco																			
Namibia																			
Panama	0	1	0	0															
Peru	0	1	0	0	1	0	1	1	0	1	0.2	3	0	0	0	0	0	0	0.2
Philippines	0	1	0	0	0	0	1	1	1	0		3	0	0	0	0	0	0	0
Sri Lanka	1	0	0	0	0	0	1	0	1	0	0.1	3	0	1	1	0	1	3	0
Swaziland																			
Thailand	1	0	0	0	0	0	1	1	0	0	0.2	2	0	0	1	1	1	3	0.1
Tunisia	0	1	0	0															
Turkey	0	1	0	0	0	0	1	0	0	0	0.1	2	0	1	0	1	0	2	0.2
Low Income																			
Bangladesh	1	0	0	0															
Cote d'Ivoire																			
Ghana	1	0	0	0															
Honduras	0	1	0	0															
India	1	0	0	0	0	0	1	1	1	1	0.1	5	0	1	1	1	1	4	0
Kenya	1	0	0	0	0	0	1	0	1	0	0.1	3	0	1	1	1	1	4	0
Nepal	1	0	0	0															
Nigeria	1	0	0	0	0	0	1	0	1	0	0.1	3	0	1	1	1	1	4	0
Pakistan	1	0	0	0	1	0	1	1	1	1	0.1	5	0	1	1	1	1	4	0
Zimbabwe	1	0	0	0	0	0	1	0	1	0	0.05	3	0	1	1	1	1	4	0

Legal origin: Dummy variables that identify the legal origin of the Company Law of Commercial Code of each country. (English, French, German or Scandinavian). *Foreign Law Encyclopedia Commercial Laws of the World.*

One share – one vote: Equals one if the Company Law of Commercial Code of the country requires that ordinary shares carry one vote per share, and zero otherwise. Equivalently, this variable equals one when the law prohibits the existence of both multiple-voting and non-voting ordinary shares and does not allow firms to set a maximum number of votes per shareholder irrespective of the number of shares she owns, and zero otherwise. *Company Law of Commercial Code.*

Proxy by mail: Equals one if the Company Law of Commercial Code allows shareholders to mail their proxy vote to the firm, and zero otherwise. *Company Law of Commercial Code.*

Share not blocked before meeting: Equals one if the Company Law of Commercial Code does not allow firms to require that shareholders deposit their shares prior to a General Shareholders Meeting thus preventing them from selling those share for a number of days, and zero otherwise. *Company Law of Commercial Code.*

Cumulative voting or proportional representation: Equals one if the Company Law of Commercial Code allows shareholders to cast al of their votes for one candidate standing for election to the board of directors (cumulative voting) or if the Company Law or Commercial Code allows a mechanism of proportional representation in the board by which minority interests may name a proportional number of directors to the board, and zero otherwise. *Company Law of Commercial Code.*

Oppressed minorities mechanism: Equals one if the Company Law of Commercial Code grants minority shareholders either a judicial venue to challenge the decisions of management or of the assembly or the right to step out of the company by requiring the company to purchase their shares when they object to certain fundamental changes, such as mergers, assets dispositions and changes in the articles of incorporation. The variable equals zero otherwise. Minority shareholders are defined as those shareholders who own 10 percent of the share capital or less. *Company Law of Commercial Code.*

Preemptive rights: Equals one if the Company Law of Commercial Code grants shareholders the first opportunity to buy new issues of stock and this right can only be waved by a shareholders' vote, and zero otherwise. *Company Law of Commercial Code.*

Percentage of share capital to call an extraordinary shareholders' meeting: It is the minimum percentage ownership of share capital that entitled a shareholder to call for an Extraordinary Shareholders' Meeting. It ranges from 1 to 33 percent. *Company Law of Commercial Code.*

Anti-director rights: An index aggregating the shareholder rights labeled as "anti-director" rights. The index is formed by adding 1 when: (1) the country allows shareholders to mail their proxy vote to the firm; (2) shareholders are not required to deposit their shares prior to the General Shareholders' Meeting; (3) cumulative voting or proportional representation of minorities in the board of directors is allowed; (4) an oppressed minorities mechanism is in place; (5) the minimum percentage of share capital that entitled a shareholder to call for an Extraordinary Shareholders' Meeting is less than or equal to 10 percent (the sample median); or (6) shareholders have preemptive rights that can only be waived by a shareholders' vote. The index ranges from 0 to 6. *Company Law of Commercial Code.*

Mandatory dividend: Equals the percentage of net income that the Company Law of Commercial Code requires firms to distribute as dividends among ordinary stockholders. It takes a value of zero for countries without such restriction. *Company Law of Commercial Code.*

Restrictions for going into reorganization: Equals one if the reorganization procedure imposes restrictions, such as creditors' consent, to file for reorganization. It equals zero if there are no such restrictions. *Bankruptcy and Reorganization Laws.*

No automatic stay on secured assets: Equals one if the reorganization procedure does not impose an automatic stay on the assets of the firm upon filing the reorganization petition. An automatic stay prevents secured creditors from gaining possession of their security. It equals zero if such restriction does not exist in the law. *Bankruptcy and Reorganization Laws.*

Secured creditors first: Equals one if secured creditors are ranked first in the distribution of the proceeds that result from the disposition of the assets of a bankrupt firm. Equals zero if non-secured creditors, such as the Government and workers, are given the absolute priority. *Bankruptcy and Reorganization Laws.*

Management does not stay: Equals one when an official appointed by the court, or by the creditors, is responsible for the operation of the business during reorganization. Equivalently, this variable equals one if the debtor does not keep the administration of its property pending the resolution of the reorganization process, and zero otherwise. *Bankruptcy and Reorganization Laws.*

Creditor rights: An index aggregating different creditor rights. The index is formed by adding 1 when: (1) the country imposes restrictions, such as creditors' consent or minimum dividends to file for reorganization; (2) secured creditors are able to gain possession of the security once the reorganization petition has been approved (no automatic stay); (3) secured creditors are ranked first in the distribution of the proceeds that result from the disposition of the assets of a bankrupt firm; and (4) the debtor does not retain the administration of its property pending the resolution of the reorganization. The index ranges from 0 to 4. *Company Law of Commercial Code.*

Legal reserve: Equals the minimum percentage of total share capital mandated by the Corporate Law to avoid the dissolution of an existing firm. It takes a value of zero for countries without such restriction. *Company Law of Commercial Code.*

Source: La Porta, Rafael; Lopez-de-Silanes, Florencio; Shleifer, Andrei; and Vishny, Robert W, 1998 "Law and Finance," Journal of Political Economy, 106(December), pp. 1113-1155.

TABLE 5
MEASURES OF CROSS-COUNTRY VARIATION IN COUNTERPARTY PROTECTIONS

Country	Risk of Expropriation	Rule of Law	Contract Enforceability	Efficiency of Judicial System	Bureaucratic Quality
High Income					
Australia	8.71	10.00	3.04	10.00	6.00
Austria	9.60	10.00	3.30	9.50	5.64
Belgium	9.48	10.00	3.29	9.50	6.00
Canada	8.96	10.00	3.27	9.25	6.00
Cyprus	7.50	5.98			4.32
Denmark	9.31	10.00	3.24	10.00	6.00
Finland	9.15	10.00	3.00	10.00	6.00
France	9.19	8.99	2.47	8.00	6.00
Germany	9.77	9.23	3.40	9.00	5.96
Greece	6.63	6.19	2.33	7.00	3.36
Hong Kong	8.82	8.21		10.00	4.14
Iceland	9.25	10.00			6.00
Ireland	8.96	7.80	3.17	8.75	5.46
Israel	7.54	4.82	3.00	10.00	4.29
Italy	9.17	8.33	2.10	6.75	4.43
Japan	9.69	8.99	3.16	10.00	5.89
Korea	8.59	5.36	2.19	6.00	4.18
Luxembourg	10.00	10.00			6.00
Netherlands	9.35	10.00	3.26	10.00	6.00
New Zealand	9.29	10.00		10.00	6.00
Norway	9.71	10.00	3.43	10.00	5.32
Portugal	8.57	8.69	1.92	5.50	3.70
Singapore	8.86	8.57	3.22	10.00	5.11
Spain	8.40	7.80	2.57	6.25	4.11
Sweden	9.58	10.00	3.30	10.00	6.00
Switzerland	9.98	10.00	3.59	10.00	6.00
Taiwan	9.16	8.52		6.75	
United Kingdom	9.63	8.57	3.43	10.00	6.00
United States	9.00	10.00	3.55	10.00	6.00
Middle-upper Income					
Argentina	4.91	5.36	2.01	6.00	3.00
Barbados					
Brazil	6.30	6.31	1.97	5.75	4.00
Chile	6.80	7.02	2.44	7.25	3.36
Malaysia	7.43	6.79	2.26	9.00	3.54
Mauritius		0.00			
Mexico	6.55	5.36	1.77	6.00	2.89
Oman					
Saudi Arabia					
South Africa	7.27	4.42	2.67	6.00	6.00
Trinidad & Tobago	6.63	6.67			3.11
Uruguay	7.29	5.00		6.50	2.00
Venezuela	6.30	6.37	1.64	6.50	2.89

TABLE 5 continued

Country	Risk of Expropriation	Rule of Law	Contract Enforceability	Efficiency of Judicial System	Bureaucratic Quality
Middle Lower					
Bolivia	4.57	2.20	1.76		1.14
Botswana	6.71	8.33			3.71
China	6.29	5.97	2.00		3.04
Colombia	7.02	2.08	1.90	7.25	4.00
Costa Rica	5.79	6.67			2.89
Ecuador	5.18	6.67	1.86	6.25	3.00
Egypt	6.05	4.17	2.09	6.50	2.64
Indonesia	6.09	3.99	1.76	2.50	1.50
Iran					
Jamaica	6.46	3.51			3.04
Jordan	4.86	4.35		8.66	3.00
Morocco	5.43	4.46	1.95		2.93
Namibia	4.42	6.67			4.42
Panama	5.11	3.51			1.11
Peru	4.68	2.50	1.72	6.75	2.11
Philippines	4.80	2.74	1.75	4.75	1.46
Sri Lanka	5.25	1.90		7.00	3.00
Swaziland		0.00			
Thailand	7.57	6.25	2.23	3.25	4.39
Tunisia	5.54	4.64			3.00
Turkey	5.95	5.18	2.00	4.00	3.29
Low Income					
Bangladesh	4.09	2.26			1.21
Cote d'Ivoire	6.40	5.64	2.58		4.00
Ghana	5.77	3.33			2.71
Honduras	5.20	3.45			1.57
India	6.11	4.17	2.00	8.00	3.82
Kenya	5.66	5.42	2.16	5.75	3.61
Nepal		0.00			
Nigeria	4.36	2.74	1.68	7.25	2.29
Pakistan	4.88	3.04	1.69	5.00	2.71
Zimbabwe	5.04	3.69		7.50	3.43

Risk of Expropriation: International County Risk's (ICR) assessment of the risk of "outright confiscation" or "forced nationalization". Average of the months of April and October of the monthly index between 1982 and 1995. Scale from 0 to 10, with lower scores for higher risks. Source: *International Country Risk Guide*

Rule of Law: Assessment of the law and order tradition in the country produced by the country-risk rating agency International County Risk (ICR). Average of the months of April and October of the monthly index between 1982 and 1995. Scale from 0 to 10, with lower scores for less tradition for law and order. Source: *International Country Risk Guide*

Contract Enforceability: Measures the "relative degree to which contractual agreements are honored and complications presented by language and mentality differences". Scored 0-4, with higher scores for superior quality.
Source: *Business Environmental Risk Intelligence*

Efficiency of Judicial System: Assessment of the "efficiency and integrity of the legal environment as it affects business, particularly foreign firms" produced by the country risk-taking agency *Business International Corporation*. It "may be taken to represent investors' assessments of conditions in the country in question". Average between 1980-1983. Scale from 0 to 10, with lower scores for low efficiency levels.

Bureaucratic Quality: Average of "bureaucratic quality" assessment values assigned by ICRG between 1982-1995. Scored 0- 6, with higher scores for superior quality.

TABLE 6
CROSS-COUNTRY VARIATION IN DEPOSIT-INSURANCE DESIGN FEATURES

DEPOSIT INSURANCE SYSTEMS	Type	Date Enacted/ Revised	Membership	Administration	Funding	Premium or Assessment Base	Annual Premium	Coverage Limit	Foreign Currency	Interbank Deposits	Source of Funding
				official=1			% of base	in ecu or U.S. dollars /6			0 = Banks Only
	explicit=1		compulsory=1	joint=2	funded=1				yes=1	yes=1	1= Banks & Gov.
	implicit=0		voluntary=0	private=3	unfunded=0				no=0	no=0	2= Government Only
Africa											
Benin	0										
Burundi	0										
Burkina Faso	0										
Cameroon	1	1999	0	2	1	deposits and nonperforming loans	0.15% of deposits + 0.5% of npls	$5,336	0	1	1
Central African Rep.	1	1999	0	2	1	deposits and nonperforming loans	0.15% of deposits + 0.5% of npls	$3,557	0	1	1
Chad	1	1999	0	2	1	deposits and nonperforming loans	0.15% of deposits + 0.5% of npls	$3,557	0	1	1
Congo	1	1999	0	2	1	deposits and nonperforming loans	0.15% of deposits + 0.5% of npls	$3,557	0	1	1
Cote d'Ivoire	0										
Equatorial Guinea	1	1999	0	2	1	deposits and nonperforming loans	0.15% of deposits + 0.5% of npls	$3,557	0	1	1
Gabon	1	1999	0	2	1	deposits and nonperforming loans	0.15% of deposits + 0.5% of npls	$5,336	0	1	1
Ghana	0										
Guinea	0										
Kenya	1	1985	1	1	1	deposits	0.15	$1,750	1	1	1
Mali	0										
Nigeria	1	1988	1	1	1	deposits	0.9375	$588 / $2435	0	1	1
Seychelles	0										
South Africa	0										
Tanzania	1	1994	1	3	1	deposits	0.1	$376	0	0	1
Togo	0										
Uganda	1	1994	1	1	1	deposits	0.2	$2,310	0	0	1
Zaire	0										
Zambia	0										
Zimbabwe	0										
Asia											

DEPOSIT INSURANCE SYSTEMS	Type	Date Enacted/ Revised	Membership	Administration	Funding	Premium or Assessment Base	Annual Premium	Coverage Limit	Foreign Currency	Interbank Deposits	Source of Funding
				official=1			% of base	in ecu or U.S. dollars /6			0 = Banks Only
	explicit=1		compulsory=1	joint=2	funded=1				yes=1	yes=1	1= Banks & Gov.
	implicit=0		voluntary=0	private=3	unfunded =0				no=0	no=0	2= Government Only
Bangladesh	1	1984	1	1	1	deposits	0.005	$2,123	0	0	1
China	0										
Hong Kong	0										
India	1	1961	1	1	1	deposits	0.005	$2,355	1	0	1
Indonesia	0										
Kiribati	0										
Korea	1	1996	1	1	1	deposits	0.05	$14,600 but in full until the year 2000	0 1/	0 1/	1
Malaysia	0										
Marshall Islands	1	1975	0	1	1	deposits	risk-based 0.00 to 0.27	$100,000	1	1	0
Micronesia	1	1963	0	1	1	deposits	risk-based 0.00 to 0.28	$100,000	1	1	0
Nepal	0										
New Zealand	0										
Pakistan	0										
Papua New Guinea	0										
Philippines	1	1963	1	1	1	deposits	0.2	$2,375	1	1	1
Singapore	0										
Sri Lanka	1	1987	0	1	1	deposits	0.15	$1,470	0	0	1
Taiwan	1	1985	0	1	1	insured deposits	0.015	$38,500	0	0	1
Thailand	0										
Vietnam	0										
Transitional Socialist Economies											
Bulgaria	1	1995	1	2	1	insured deposits	risk based to 0.5	$1,784	1	0	1
Croatia	1	1997	1	2 3/	1	insured deposits	0.8	$15,300	1 2/	0	1
Czech Rep.	1	1994	1	1	1	insured deposits	commercial banks: 0.5, savings banks 0.1	coinsurance to 11756	0	0	1
Estonia	1	1998	1	2	1	deposits until 2002	0.5 (max)	coinsurance 90% of 1383, but ecu in 2010	1	0	1
Hungary	1	1993	1	2	1	insured deposits	risk based to 0.3	ecu 4165 or $4565	1	0	1

DEPOSIT INSURANCE SYSTEMS	Type	Date Enacted/ Revised	Membership	Administration	Funding	Premium or Assessment Base	Annual Premium	Coverage Limit	Foreign Currency	Interbank Deposits	Source of Funding
				official=1			% of base	in ecu or U.S. dollars /6			0 = Banks Only
	explicit=1		compulsory=1	joint=2	funded=1				yes=1	yes=1	1= Banks & Gov.
	implicit=0		voluntary=0	private=3	unfunded =0				no=0	no=0	2= Government Only
Poland	1	1995	1	1	1	deposits, also risk-adjusted assets	not more than 0.4	ecu 1000, then 90% coinsurance for the next ecu 4000	1	0	1
Romania	1	1996	1	2	1	insured deposits	risk-based 0.3 to 0.6	$3,600	1	0	1
Slovak Republic	1	1996	1	2	1	insured deposits	0.1 to 0.3 for banks	$7,900	1	0	1
Latvia	1	1998	1	1	1	insured deposits	0.3	$830 until year 2000	1	0	1
Lithuania	1	1996	1	1	1	insured deposits	1.5	$6250 then coinsurance	1 ***	0	1
Kazakstan	0										
Kyrgyz Republic	0										
Macedonia	1	1996	0	2	1	insured deposits	1.5, risk-based 1% to 5%	coinsurance 75% to $183	1	0	1
Russia	0										
Ukraine	1	1998	1	1	1	total deposits	0.5 plus special charges	$250	1	0	1
Middle East											
Bahrain	1	1993	1	2	0	deposits	ex post	$5,640	1	0	0
Cyprus	0										
Egypt	0										
Iran	0										
Iraq	0										
Israel	0										
Jordan	0										
Kuwait	0										
Lebanon	1	1967	1	2	1	credit accounts	0.05	$3,300	0	1	1
Libya	0										
Oman	1	1995	1	1	1	deposits	0.02	coinsurance 75% to $52,630	1	0	1
Saudi Arabia	0										
Syria	0										
Turkey	1	1983	1	1	1	insured savings deposits	risk-based 1.0 to 1.2	in full	1	0	1
United Arab Emirates	0										

DEPOSIT INSURANCE SYSTEMS	Type	Date Enacted/ Revised	Membership	Administration	Funding	Premium or Assessment Base	Annual Premium	Coverage Limit	Foreign Currency	Interbank Deposits	Source of Funding
				official=1			% of base	in ecu or U.S. dollars /6			0 = Banks Only
	explicit=1		compulsory=1	joint=2	funded=1				yes=1	yes=1	1= Banks & Gov.
	implicit=0		voluntary=0	private=3	unfunded =0				no=0	no=0	2= Government Only
Central and Latin America											
Argentina	1	1971, 1979, 1995	1	3	1	insured deposits	risk-based, 0.36 to 0.72	30,000	1	0	0
Belize	0										
Bolivia	0										
Brazil	1	1995	1	3	1	insured deposits	0.3	$17,000	1	0	0
Chile	1	1986	1	1	0	not applicable	none	demand deposits in full and 90% coinsurance to UF 120 of $3,600 for savings deposits	1	0	2
Colombia	1	1985	1	1	1	insured deposits	0.3	in full untill 2001, then coinsurance to $5,500	0	1	0
Costa Rica	0										
Dominican Republic	1	1962	0	2	1	deposits	0.1875	coinsurance to $13000	1	0	1
Ecuador	1	1999	1	1	1	deposits	0.65	in full to year 2001	1	1	n.a.
El Salvador	1	1999	1	1	1	insured deposits	risk-based, 0.1 to 0.3	$4,720	1	0	1
Guatemala	0										
Guyana	0										
Honduras	0										
Jamaica	1	1998	1	1	1	insured deposits	0.1	$5,512	1	0	1
Mexico	1	1986	1	1	1	all obligations	0.3 (max) plus 0.7 as needed	in full except subordinated debt until 2005	1	1	1
Panama	0										
Paraguay	0										
Peru	1	1992	1	2	1	insured deposits	risk-based from 0.65 to 1.45	$21,160	1	0	1
Trinidad & Tobago	1	1986	1	1	1	deposits	0.2	$7,957	1	1	1
Uruguay	0										
Venezuela	1	1985	1	1	1	insured deposits	2	$7,309	0	0	1

DEPOSIT INSURANCE SYSTEMS	Type	Date Enacted/ Revised	Membership	Administration	Funding	Premium or Assessment Base	Annual Premium	Coverage Limit	Foreign Currency	Interbank Deposits	Source of Funding
				official=1			% of base	in ecu or U.S. dollars /6			0 = Banks Only
	explicit=1		compulsory=1	joint=2	funded=1				yes=1	yes=1	1= Banks & Gov.
	implicit=0		voluntary=0	private=3	unfunded =0				no=0	no=0	2= Government Only
Industrialized Countries											
Australia	0										
Austria	1	1979	1	3	0	insured deposits	pro rata, expost	$24,075 but coinsurance for businesses	1 **	0	1
Belgium	1	1974	1	2	1	insured liabilities	0.02 + 0.04	ecu 15000, 20000 in year 20000	1 **	0	1
Canada	1	1967	1	1	1	insured deposits	0.33 max	$40,770	0	1	1
Denmark	1	1988	1	2	1	insured deposits	0.2 (max)	ecu 20000	1	0	1
Finland	1	1969	1	3	1	insured deposits	risk based: 0.05 to 0.3	$29,435	1	0	1
France	1	1980	1	3	0	n.a.	on demand but limited	65387	1 **	0	0
Germany	1	1966	1	3	1	insured deposits in commercial banks DIS, risk-assets in other DIS	official is 0.03 but can be doubled	private: 30% of capital; official coinsurance 90% to ecu 20000	1	0	0
Gibraltar	1	1998	1	2	0	insured deposits	admin.expenses and expost	lesser of 90% coinsurance of ecu 20000	1 ***		0
Greece	1	1993	1	2	1	deposits	decreasing by size: 0.0025 to 1.25	20,000 ECU	1	0	0
Iceland	1	1985	1	1	1	insured deposits	0.15	ecu 20000	1	0	0
Ireland	1	1989	1	1	1	EU and EEA, i.e insured deposits	0.2	coinsurance 90% to ecu 15000	1 ***	0	0
Italy	1	1987	1	2 4/	0	protected funds adjusted for size and risk	risk adjusted expost 0.4 to 0.8	$125,000	1	0	1
Japan	1	1971	1	2	1	insured deposits	0.0048 + 0.036	$71000, but in full until March 2001	0	0	1
Luxembourg	1	1989	1	3	0	insured deposits	ex post	coinsurance 90% to ecu 15000 thru 1999, then to ecu 20000	1	0	0

DEPOSIT INSURANCE SYSTEMS	Type	Date Enacted/ Revised	Membership	Administration	Funding	Premium or Assessment Base	Annual Premium	Coverage Limit	Foreign Currency	Interbank Deposits	Source of Funding
				official=1			% of base	in ecu or U.S. dollars /6			0 = Banks Only
	explicit=1		compulsory=1	joint=2	funded=1				yes=1	yes=1	1= Banks & Gov.
	implicit=0		voluntary=0	private=3	unfunded =0				no=0	no=0	2= Government Only
Netherlands	1	1979	1	1	0	case by case	expost	ecu 20000	1	0	1
Norway	1	1961	1	3 5/	1	risk-weighted assets and total deposits	0.005 assets 0.01 deposits	$260,800	1	0	1
Portugal	1	1992	1	1	1	insured deposits	risk-based 0.08 to 0.12 + more in emergencies	ecu 15000, coinsurance to ecu 45000	1	0	1
Spain	1	1977	1	2	1	insured deposits	max. of 0.2	ecu 15000 through 1999, then ecu 20000	1	0	1
Sweden	1	1996	1	1	1	insured deposits	risk-based, 0.5 npw, 0.1 later	ecu 28663 $31412	1	0	1
Switzerland	1	1984	0	3	0	balance sheet items	on demand	$19,700	0	0	0
United Kingdom	1	1982	1	3	0	EEA deposits i.e. insured deposits	on demand	larger of 90% coinsurance to $33,333 or ecu 22,222	1	0	0
United States	1	1934	1	1	1	domestic deposits	risk-based, 0.00 to 0.27	$100,000	1 ***	1	1

** Coverage is extended to deposits in the domestic currency, ecus or the currencies of other members of the EU.
*** Coverage is extended to deposits in sterling, ecus or the currencies of other members of the European Economic Area (which include EU).

1/ Korea has placed a temporary full guarantee on deposits.
2/ Croatia excludes foreign currency deposits placed prior to 1993 as they were covered by an issuance of government bonds.
3/ In Croatia, the system is administered by a private agency, but some decisions must be approved by the central bank.
4/ Although the scheme is privately run in Italy, all decisions must be approved by the central bank so the DIS has little authority.
5/ Norway has two schemes. Both are privately run, but each has two public members on its seven-member board – one from the central bank and the other from the Banking and Securities Commission.
6/ Exchange rates at the end of June 1998.
7/ Coverage in Nigeria is higher at the official exchange rate than at the market rate.
8/ The premium in Belgium can be raised by a maximum of 0.004 percent when the funds' liquid assets fall below a critical level.
9/ The premium charged by the private deposit insurance schemes in Germany vary by scheme from 0.004 to 0.1 percent.
10/ Coverage in Iceland in principle is full. The minimum is ecu 20,000. Above that, payment is in proportion to the resources of the fund.
11/ Coverage in Latvia will rise gradually to ecu 20,000 by the year 2008.
12/ in the Netherlands, the ex post assessments are made case-by-case on the bases of several items of data recently reported to the central bank. A comparison is made between the portfolios of the failed bank and the assessed bank. Costs are apportioned after consultation with the bankers' committee.
13/ Article 25 of the deposit insurance law in Poland sets premiums at no more than 0.4 percent of deposits. However, Article 13 states that premiums should not "exceed 0.4 percent of the sum of assets rated according to risk".

14/ Turkey has provided unlimited coverage since May 1994.
15/ In Argentina, deposits that pay more than 200 basis points above the reference rate are not insured.
16/ Premiums in Colombia will become risk-based in the year 2000.
17/ The premium in Peru is computed to the maximum amount insured and applies only to deposits of individuals and non profit institutions. Banks pay 0.65 percent of total deposits plus 0.2 percent for each higher risk category.

Source: "Deposit Insurance: A Survey of Actual and Best Practices". Prepared by Gillian G.H. Garcia, Working Paper International Monetary Fund, Monetary and Exchange Affairs Department, c1999 (Washington, D.C.)

TABLE 7

PRINCIPAL COMPONENTS ANALSIS OF BINARY VARIABLES INDICATING EXISTENCE OF EIGHT SAFETY-NET DESIGN FEATURES AS PART OF THE EXPLICIT DEPOSIT-INSURANCE SYSTEMS OF 40 COUNTRIES

Component	Eigenvalue	Proportion of Covariance Explained	Cumulative Proportion Explained
1	2.35396	0.294	0.294
2	1.54301	0.193	0.487
3	1.03226	0.130	0.616
4	0.92069	0.115	0.731
5	0.74728	0.093	0.825
6	0.67318	0.084	0.909
7	0.41151	0.051	0.960
8	0.31811	0.040	1.000

	Eigenvectors							
Design Feature	1	2	3	4	5	6	7	8
Involuntariness	0.03446	0.70951	0.13933	0.09557	0.05198	0.02037	-0.67204	-0.11001
CL	0.13924	-0.23528	0.75875	0.41237	-0.11961	0.39312	-0.00576	-0.10311
CI	0.38789	0.20163	-0.34568	0.25071	-0.63197	0.29205	0.09714	0.36390
PM	0.50853	-0.14058	0.07508	0.05889	0.51626	-0.15133	-0.16602	0.62892
Funded at all	-0.43254	0.15256	-0.16777	0.04716	0.39988	0.71419	0.11848	0.27433
Privately Funded	0.46589	-0.06180	-0.39694	0.29620	0.35720	0.20512	0.05075	-0.60133
Foreign-Den.	0.25809	0.57313	0.29976	-0.22588	0.13917	-0.05078	0.66413	-0.04658
Interbank	-0.31561	0.16250	-0.06841	0.78327	0.10107	-0.42677	0.23161	0.10139

Note: All variables are binary. Each variable takes on the value of unity when the specified design feature is present. "Involuntariness" indicates that membership is mandatory; CL indicates that nominal coverage limits are specified; CI indicates that coinsurance exists for at least some depositors; "funded at all" indicates that deposit-insurance obligations are funded in some way; "privately funded" indicates that funding comes exclusively from private sources; "foreign-Den." indicates that foreign-denominated deposits are explicitly covered; "interbank" indicates that interbank deposits are formally guaranteed.

TABLE 8

CALCULATED VALUES OF THE FIRST THREE PRINCIPAL COMPONENTS OF SAFETY-NET DESIGN FEATURES IN 40 COUNTRIES

Countries	Degree of Privatization	Breadth of Coverage	Susceptibility to Hidden Risk Shifting
Argentina	0.974	0.997	0.708
Austria	1.328	1.107	0.927
Belgium	-0.001	1.199	1.030
Bangladesh	-0.259	0.627	0.730
Brazil	0.974	0.997	0.708
Canada	-0.574	0.789	0.666
Switzerland	1.114	-0.438	0.437
Chile	0.432	1.046	1.198
Colombia	0.279	0.928	-0.077
Germany	1.362	1.198	0.363
Denmark	-0.001	1.199	1.030
Spain	-0.001	1.199	1.030
Finland	0.508	1.058	1.105
France	1.406	0.844	0.876
United Kingdom	1.794	1.046	0.530
Greece	0.465	1.137	0.633
India	-0.001	1.199	1.030
Ireland	0.853	1.339	0.287
Iceland	0.714	1.574	-0.471
Italy	0.820	1.248	0.852
Jamaica	-0.001	1.199	1.030
Japan	-0.398	0.862	-0.028
Kenya	-0.316	1.361	0.965
Korea	-0.259	0.627	0.730
Sri Lanka	-0.293	-0.083	0.591
Luxembourg	1.794	1.046	0.530
Mexico	-0.456	1.597	0.207
Nigeria	-0.574	0.789	0.666
Netherlands	0.432	1.046	1.198
Norway	0.508	1.058	1.105
Oman	0.387	1.401	0.684
Peru	-0.001	1.199	1.030
Philippines	-0.316	1.361	0.985
Portugal	0.387	1.401	0.684
Sweden	-0.001	1.199	1.030
Trinidad Tobago	-0.316	1.361	0.965
Turkey	-0.140	1.434	0.271
Taiwan	-0.293	-0.083	0.591
United States	-0.316	1.361	0.965
Venezuela	-0.259	0.627	0.730

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